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No flood of cut-price STs, says Atari

ATARI UK has described reports of cut-price 520STs flooding into the country through the back door as "suspect to say the least".

The company has investigated several stories concerning possible black market machines and found them to be without foundation.

"All the leads we have followed up in this area have proved to be fruitless", says Max Bambridge, Atari UK's general manager.

"Naturally because of the intense interest generated by the 520ST some people will have gone to considerable lengths to get their hands on them", he said.

"But if there is such a market it is much more likely to be grey rather than black".

However one major distributor still insists there is an

under-the-counter operation involving hundreds of machines. These are allegedly being offered for sale at discounts of more than £70.

These claims come from Tony Deane, a director of Silice Shop, the Atari distributor for Greater London south of the Thames, Sussex, Kent and Middlesex.

"We believe that these machines are coming in via the back door from sources in the Far East and Holland", he told Atari User.

"We know this to be true because dealers in our own area have bought them. This is all making a mockery of the Atari distribution plan for the ST which effectively carved the company up into regions".

Tony Deane added a warning for both dealers and customers that they may well

get their fingers burned if they do not buy from legitimate sources.

"If a machine has not been purchased through normal channels the guarantee is not valid", he said. "So if it goes wrong there is no comeback for the buyer."

"Then they will realise that, even if they have bought it cheaply it certainly won't be good value for money".

Top selling Atari programs

Compiled every month for Atari Users by Terry Blood Distribution Ltd.

- | | |
|----|---|
| 1 | <i>Sounderblast</i>
Microvast |
| 2 | <i>Spot the Ball</i>
Thorn EMI |
| 3 | <i>Pole Position</i>
US Gold |
| 4 | <i>Rissler</i>
Covision
English |
| 5 | <i>Chop Swoy</i>
English |
| 6 | <i>Summer Games 2</i>
US Gold |
| 7 | <i>Red Moon</i>
Level 9 |
| 8 | <i>Beach-Head</i>
US Gold |
| 9 | <i>Gale Thompson's</i>
<i>Deathblow</i>
Ocean |
| 10 | <i>F150</i>
Pinsard |

Drive on schools

ATARI is poised to gain a foothold in the UK educational market with a discount scheme aimed at schools and colleges.

The company has announced that it is offering 10 per cent off all 8 bit

computer hardware, peripherals and software.

In addition it is aiming to win over the colleges with 15 per cent off the ST machines and their associated peripherals and software.

The Mac basher

A BENCHMARK test of computer speed has proved conclusively that the 520ST can show a clean pair of heels to the Apple Macintosh.

Set up by Antic, an American computer magazine, it saw the Atari flagship machine execute a program in 3.8 seconds which took the Mac from 7 to 13 seconds.

Using the most widely accepted standard in the computer industry, the procedure involved turning the micros loose to find all prime numbers between 3 and 13,681.

By timing in a time of 3.8 seconds, the 520ST revealed itself to be as fast as minicomputers running on the Unix system.

Target is 20 million

ATARI has targetted a potential worldwide market of up to 20 million customers for the ST range.

This was revealed by the corporation's chairman Jack Tramiel during a recent visit to London.

Discussing the long term strategy behind the global marketing of the ST, he told Atari User: "What we have out there are 20 million people who have already bought 8 bit machines."

"Now these people are looking to upgrade them. They want something that's faster and easier and at the right price. Well that is just what Atari is offering them".

Jack Tramiel believes that his

team will set the pace because its members have a better understanding of what the end user really wants.

"The majority of manufacturers do not understand the customer", he insists. "All of them believe that with advertising they can reach the position that General Motors once held. That being they were able to persuade people that all they wanted out of life was a yellow car."

"Well that was okay until the Japanese arrived and offered blue cars of better quality at a lower price. Suddenly nobody wanted the yellow cars any more."

"That's what is now happening in the computer industry".

The outspoken entrepreneur is unflinching in his belief that it will be the informed computer user who will make Atari number one.

"When I left Commodore I knew that the only way to bring this business back alive was to continue my philosophy of giving the end user - the most intelligent person in our society - the best technology available at the time", says Jack Tramiel.

"As far as I am concerned he has had enough of 8 bit products, even with all the advertising that's been done."

"The launch of the ST was the best I have been involved in since the beginning. It proved to me once again that the end user knows best what he wants."

Atari 'seal of approval' for top software

THE creme de la creme of Atari XL and XE software is now instantly recognisable, says Atari, having just initiated its own software "awards".

It is giving Atari Approved Software labels to what it believes are the best titles available in five categories - small businesses, education, recreation, utility and creativity. They are to be presented on a regular basis.

Software houses and distributors have already been invited to submit titles for evaluation by Atari and an outside examiner. Criteria for approval include quality, value for money and suitability to the machine. A licence fee is not being charged for the labels.

Atari has already decided on its first winners and one company which has fared extremely well in the listings is distributor Software Express.

The distributor's approved titles are Earthwings, The Factory, Paperclip, SynCalc, B-Graph, Action!, Basic XE, Bank Street Music Writer, Print Shop, Hitch Hiker's Guide, Kennedy Approach and Space Base, a number of which are American imports.

Atolsoft was next in line with Seven Clues of Gold, a 130XE version of Paperclip and B-Graph.

Also included were Rescue from Fractulus and Ballblazer from Activision, Zorro and Kennedy Approach from US Gold, Microbase+ from Silicon and P-Port from Bignose Software.

Atari have been commended on the approval scheme by Mike Rowlands-Jones of Software Express. "It is not only a good incentive for the software houses, but a great help to customers", he said.

"Customers usually have several titles of a similar nature to choose from. If they see a label of approval from the machine's manufacturer they at

least know it must have something going for it".

"In the charts approval is given to a title because it is in the top ten that week. In three months it could be gone. I believe the titles which should be rewarded - and there are some out there - are the classics."

The approval scheme has already taken off in America and is working well, said Rowlands-Jones. "And it will work here as long as it is not a five minute publicity gimmick. It needs publicising and for all software houses to become involved."

Computer links for churches

THE recently-formed Christian Micro Users Association has begun its work of linking together computer users of various denominations and promoting the use of micros in church activities.

Association secretary Philip Clark told *Atari User*: "There is a great need to discover and make contact with the individuals and companies producing 'Christian software'."

"We also need to share the expertise and ideas of the many who have sought to use micros in their church-related activities".

The aim of CMUA is to concentrate on the popular computers like the Atari and it has already unearthed a significant number of programs based on Bible studies.

The Association intends to produce a quarterly magazine called *Christian Micro* and, from next January, launch a series of tape magazines for specific micros.

Its other activities will include the formation of local groups



Double challenge on the ST

TALENT Computer Systems is providing users of the 520ST with a double challenge in its latest release.

The single 3.5in disc includes two fast-paced adventures - *West and The Lost Kingdom* of Zbul.

West acts as an introduction to the more demanding dungeons and dragons scenario of *Zbul*. The aim is to track down a notorious gang of bank robbers who have gone to ground in an abandoned mine in Indian territory.

There is gold to be collected, clues to be solved, and Indians, rattlesnakes and robbers'

bullets to dodge in more than 130 locations.

Zbul is a classic and complex adventure with in excess of 200 locations and a huge vocabulary.

Users must find the lost refuge of the dwarves, the Dorned City, and the precious secret of the old civilisation.

It is a real time adventure with tasks to complete, puzzles to solve and mazes to negotiate.

The two-in-one disc costs £24.95.

Video digitiser launch

A VIDEO digitiser for the Atari 800, 800XL and 130XE has been produced by Stein Computing.

Called *Computereyes*, it has been adapted for the British and European PAL video standard from the original NTSC model designed and manufactured by Digital Vision in the USA.

Computereyes will digitise from any standard video source including video recorder and video disc.

Images are placed in the hi-res graphics area and can be saved to disc if desired. Special high contrast and grey-scale capture routines are included. The system costs £139.

Pascal for ST

FORTRAN 77 and Pascal are to be developed for the Atari ST by Prospero Software, which hopes to have the two language programs available at the end of this year.

PROTEUS ON ITS WAY

A SECRET software product with the code name Proteus is currently being developed at the London headquarters of Softtek.

It is an integrated suite of programs which has been designed, says the company, to sit on top of GEM.

"There has been nothing like it seen on the market before", says Tim Langdell of Softtek. "We are convinced it will rival both Jazz and Symphony in its impact."



Dutch schools go for the 800XL

DUTCH children have begun to learn about computing, and the Atari 800XL is the machine chosen by the education authorities to do for Holland what the BBC Micro did for Britain.

A series of radio and television programs featuring the 800XL is being broadcast to Dutch elementary schools.

Its aim is to introduce youngsters to information technology and smooth the process of learning to use micros.

The project is being supervised by the Dutch school radio foundation SNS, a combination of the school radio services of



AVRO and VARA, founded in 1951.

Other participants involved, apart from SNS and Atari, are the department of education at Amsterdam University and Wolters Software.

Atari Benelux sales and marketing manager Wilfried de Greal says the project could lead to sales of more than

100,000 800XLs in Holland.

Pupils will learn the history of communication, how to use the 800XL, solving problems by computer, programming and other skills.

The SNS is encouraging pupils and teachers to develop their own software to add to the library of programs broadcast on the schools radio network for downloading on to cassette.

Two 15 minute television programs featuring the 800XL will be broadcast each week in the afternoon so that they can be watched during school lessons.

Mohawks take the Atari trail

BIG chief Jack Tramiel has come to the aid of the Mohawk Indians in Canada, the country where he had some of his earliest business successes.

The Atari boss presented the first of 10 520STs to band councillor Murray Marselle at the 1985 Computer Fair in Toronto.

The machines will be used for training at the First Nations Technical Institute, but their donation is of much greater value than that to the Indians.

For Atari has commissioned the Mohawks' educational arm to develop a syllabic font for

use in developing software in the many North American Indian languages.

The syllabic font will be based on an alphabet of pictogram-like marks, or picture symbols, developed to represent words and phrases in the Indian tongues.

When the development work is done the Mohawks will become value added re-sellers for Atari, marketing the 520ST to native groups all over the

North American continent.

The idea of developing a syllabic font for use with the 520ST was discussed during meetings between the Mohawks and Atari Canada.

"Being good Canadians, and the Indians have been here long before us, we thought why don't we try to do something for them", says Atari Canada general manager Ian Kennedy.

Then we spoke to Jack Tramiel about it and he thought it was a great idea and sanctioned the donation of the 10 machines for training and software development."

Enhanced Gem is forecast

A MAJOR row between the Apple Corporation and Digital Research has been settled in such a way that Atari may emerge as the eventual winner.

Digital Research has agreed to pay Apple an undisclosed sum and amend its Gem program to avoid any possible infringement of copyright.

It is these programs that are being offered with the new ST range of micros.

One result of the compromise settlement is that new versions of Gem are to be produced, "designed to be substantially different to Apple's Macintosh personal computer in both screen appearance and operation".

This is viewed by the industry as a move by Apple to counteract Gem providing the ST with a Macintosh type environment. For this had already earned the Atari machine - some half the price of the Mac - its nickname of the Jackintosh.

However Max Sambridge, Atari UK's boss, seemed upset by the news when it was broken to him by Atari User. "As this involves an agreement with which we are not directly involved, it is really nothing to do with us", he said.

"But it would seem safe to say that if the Gem packages available for the ST have to be changed they will naturally be improved."

"And this may well mean that the ST will be able to score even more heavily against the Macintosh."

Meanwhile Apple has disclosed that it has pressurised Digital Research to take immediate action in the modification of three specific programs - Gem Desktop, Gem Paint and Gem Draw.

However until the new versions of these become available, the current ones - available for the ST - will still be marketed.

Digital Research has given the assurance that all its present range of programs for the ST will operate in any future Gem environment.



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It's 5.30am Tuesday - which is 7.30 Monday evening at MicroLink's nerve centre, and half an hour before the deadline for guaranteed next day delivery of Telemessages.

Ned hastily scribbles out a few affectionate words and soon has the greeting safely transmitted to MicroLink, from where it is passed on to Liza's local delivery office.

In common with her fellow market flower sellers, Liza gets her mail very early...so Ned's birthday greeting arrives on a colourful Telemessage card at 5.15 Tuesday morning - half an hour before he transmitted it to MicroLink.

Even better news for Ned - because Australia is on the International PacketSwitch Stream network he is able to shoot his message across 10,500 miles for the equivalent of about 15p. The MicroLink Telemessage itself costs him £1.95, plus 65p for the fancy greeting card.

So Ned's long distance romance with Liza is saved for less than £2.

System speeds up

SENDING a telex message overseas via MicroLink is now easier and faster.

Previously when a system user was asked "Tlx, Key plus or Code?" he had to access an alphabetical list of countries and read through it to get the appropriate code

number of the country he was sending to.

Now he can just type in the name of the country, telex number, and the carrier back code where appropriate, and press Return before typing in the text of the message he wants to send.

Church keeps in touch by telex

A MICROLINK member with a mission is Colonel K.A. Christian, who until his retirement was head of telegraph and data systems at British Telecom headquarters.

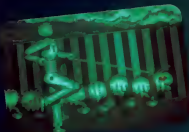
As secretary to the Deanery of Clare in the Diocese of Bury St. Edmunds and Ipswich he uses his Tandy Model I and Miracle Modern as often as possible to communicate by electronic mail and telex with other church officials.

And he is also a member of the Church Computer User Group, whose patron is the Archbishop of York and whose aim is to spread the gospel of high tech among church administrators.

A prime target for a telecomputing baptism is his Rural Dean, the Rev Andrew Harg, who has a Commodore 64 but hasn't yet got a modem.

"I'm hoping he'll obtain one very soon", says Col. Christian. "I can contact our Deanery Treasurer's Apple II via Presel and I can use MicroLink's telex facility to communicate with the Diocesan Registrar."

"What would really please me is for them all to be linked by the electronic mail service so we could show how telecomputing can help church administrators function more efficiently."



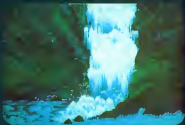
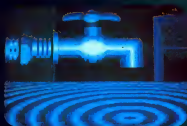
ST colour magic

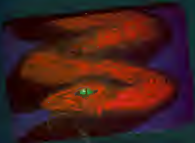
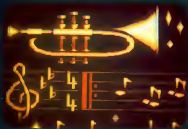
THE 520ST sitting in the Atari User office has obviously been the centre of attention recently. However, it was almost the scene of tears a few days ago when three demonstration discs for the 520ST arrived from America.

Tears of elation, then? Not so for the package had been damaged in the post. Fortunately, the story has a happy ending. Despite the ramblings of the Director of Mail Processing in San Francisco on how "insecurely enveloped" mail could cause their machinery to jam, the three discs had survived intact.

The collective editorial sigh of relief was heard several offices away.

The monochrome pictures in the "slide show" demos were pretty impressive, but when we hooked up a colour monitor – kindly rushed to us by Silica Shop – everybody gaped in amazement. The quality is so good that we've reprinted them here. If you think they look good, you should see them in real life.





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IN THIS ISSUE

The complete list of pioneering programs

ST software

- What's being written
- Who's producing it
- When it's available

Company	Product	Engineered activity done
WORD PROCESSING		
IBM	Business	None
Cambridge Research	Cambridge	None
Profil	Multiwrite	None
Profil	Spillwrite	Nov 85
Profil	Wordmate	Nov 85
Heint Systems	Heint	None
Heint Systems	Heint	TBA
Korea Computer	Heint	None
Mark of the Unicorn	Micro Editor	None
Microcorse	ED	None
Mirage	Mirage	None
Microsoft Software	Supermac	Jan 86
SM Software	Word Processor	TBA
SM Software	Word Processor	TBA
SM Software	Spring Chicken	TBA
DATABASE		
IBM	Access	None
IBM	Access	None
IBM	Access	None
Profil	Compufile	Nov 85
Korea Computers	K-Data	None
Laserteck	Laserteck	TBA
Laserteck	Laserteck	Jan 86
Laserteck	Laserteck	TBA
SM Software	SM Software	None
SM Software	SM Software	None
SM Software	SM Software	None
SM Software	SM Software	None
SPREADSHEET		
IBM	Business	None
IBM	Business	None
IBM	Business	None
Profil	Profil	None
Korea Computers	Korea Computers	None
Laserteck	Laserteck	None
Laserteck	Laserteck	None
SM Software	SM Software	None
SM Software	SM Software	None
SM Software	SM Software	None
SM Software	SM Software	None
PRICE 5 systems		
IBM	Business	None
IBM	Business	None
IBM	Business	None
Profil	Profil	None
Korea Computers	Korea Computers	None
Laserteck	Laserteck	None
Laserteck	Laserteck	None
SM Software	SM Software	None
SM Software	SM Software	None
SM Software	SM Software	None
SM Software	SM Software	None

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Maybe it's fun to you – but it's £6 an hour to your wife!

The Computer that's been giving you such a fine time with computer games is now ready to earn you some real money. Helping you to run your own business or giving your wife the chance to earn £6 or more an hour for word processing/secretarial work.

All because of the brilliant new word processing package, SuperScript from MicroPro – the makers of Wordstar – the world's best selling word processing packages for microcomputers.

SuperScript

writes letters, invoices, reports, tables, documents, it stores, edits and even checks spelling.

Versatile SuperScript SuperScript combines word processor spelling checker calculator and mail merge facility all in one package. So SuperScript gives you all the tools you need to produce high quality reports, tables, lists, personalised letters and prints labels quickly and efficiently.

Simple for the beginner If you are a newcomer to word processing, SuperScript puts you under control at once. Each command is a single word, and for each command you simply move the cursor. You don't even have to type the command.

Good with numbers SuperScript allows you to extend your editing facilities to 255 columns for wide documents like financial statements, and will do almost all it's easy to enter properly published tables of numbers. SuperScript's complete set of calculator functions can be used interactively or you can operate on numbers from the text of your documents. Apart from the usual mathematical functions like add, subtract, multiply, divide, and percentages, you have the ability to add rows, columns or even whole tables.

Good with spelling, too The built-in spelling checker gives right through your text, checking for errors. You have the option to correct any error, ignore it, or add the word to its 30,000 word dictionary.

Editing options SuperScript gives you all the editing features of a personal style word processor, with full block manipulation, cut-and-paste, rewrite or text insertion modes, search and replace with patterns matching and optional case discrimination, backward search, case shifts for single words or larger blocks of text. And much more.

Powerful for the experienced user SuperScript also gives you the ability to cut work down to a minimum by storing your own customised sequences or text on single keys. This means that with a single keystroke you can reproduce commonly used phrases or multi-line addresses from a glossary, load in document formats or create a pre-programmed sequence of operations.

Mailing with SuperScript Personalised mailings are easy with SuperScript. You can enter the data manually or use data extracted from your spreadsheet or database. Merging can be selective. A mailing labels template is included to help you complete your mailing and you can alter the template to suit your own label format.

Attention Easy Script users! If you're already an Easy Script user, this SuperScript add-on command key. Whilst enhanced features and more powerful facilities, you'll be able to do so much more. There are no compatibility problems either. You can run your Easy Script data or Easy Script documents under SuperScript. And by returning your Easy Script disk can obtain an upgrade for £49.95.



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Access Via Po, _____ Signature _____

Name _____

(BLOCK CAPS) Address _____

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If you are intending to use SuperScript for a specific purpose, we should be interested to hear details. Thank You _____



Gunpowder, Treason and Plot!

IT'S November 5th and the plot to blow up the House of Parliament has been foiled. Guy Fawkes has been discovered in the basement with a barrel of gunpowder, just about to light the fuse.

He's on the run now and the guards are hot on his tail. Every way he turns there seem to be more and more guards. Can you help him escape?

All he's got is the spade he used to dig his way into the basement. He can use this to dig holes in the floors.

With a bit of luck the guards won't see them and will fall into them. But be careful though. If you fell down one of the holes yourself you've had it.

Guy Fawkes is a fast ladders and levels game with 15 screens. There's a catchy tune to accompany the title page and instructions.

The screen is stored as data statements starting at line 5163 and the layout can be changed by changing the data.

You could also add another set and randomly select one or the other for variety if you're feeling adventurous.

A seasonal
fast ladders
and levels
game by
**ROLAND
WADDILOVE**

VARIABLES

LIVES Lives left.
SCREEN Screen.
A(19,23) A copy of the screen.
B(30,1) The coordinates of the guards.
D(30) Whether the guards are alive or dead.
X,Y Your coordinates.
S The start of screen RAM.
OK Whether you are dead or alive.
L Number of guards left.

```

10 REM Guy Fawkes
20 REM By G.B. Maddislee
30 REM C3 Steps 858r
40 REM Written on start 888 XL
50 POKE 100,PEEK(100)+65536*PDS 0
60 P="Thinking..."
80 GOSUB 7000:REM Initialise
90 GOSUB 8500:REM Instructions
100 L=LVS-1:SCREEN=1
110 GOSUB 5000:REM Screen
120 GOSUB 6000:REM Start
130 GOSUB 1010:GOSUB 1500
140 IF OK AND L THEN 200
150 IF OK THEN SCREEN=SCREEN+1
160 IF NOT OK THEN GOSUB 7000
170 IF LVS THEN 100
180 GOSUB 4500:REM Ending
400 GOTO 100:REM Another game
500 END

1000 REM ----- Move Man -----
1010 P=545*PDS+1:IF R(X,Y)=4 OR PEEK(3)
  G133 THEN REM:RETURN
1020 IF R(X,Y)+1=6 THEN GOTO 1070:GOTO
  1070
1030 IF 5000*G133 AND 0 THEN R(X,Y)=Y
  UNCOMMON:PN=PN+1:RETURN
1040 JY=5700*G133:JX=610+133+4*JY+73
  JY=610+133+4*JY+133:IF JX THEN JY
  1050 IF 100 OR 133 THEN JX
  1060 IF 642,13 G2 OR 13 AND J=73 THEN
    RETURN
1070 SOUND 0,10,10,0:G133+1:JY+1:IF PEE
  K133 THEN REM
1080 POKE P,545*PDS+1:JY=133:POKE 0,133:
  0=1-RX-1:Y=JY:GOSUB 0,0,0,0:RETURN
1500 REM ----- Move Guards -----
1510 SOUND 1,173,10,0:JY+1:IF N=SCREEN
  MP2 THEN REM
1515 P=610,0:0=0:0,13:IF 0:0 THEN RE
  TURN
1520 IF 647,13=4 THEN 0:0=1:POKE 544*
  MP2,0:13=1:RETURN

```

WILL RILEY

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50

prizes in our great free competition



*Win one of 50 copies of
Chop Suey, the latest,
greatest test of skill in
the art of Kung-Fu*

THIS month we're giving away 50 copies of Chop Suey, the great new Kung-Fu game, courtesy of English Software.

All you have to do is study the word square below and find as many names of Far Eastern countries as you can.

Then send the coupon back to us with the names neatly circled.

We also want you to tell us how many you discovered - we're not telling you how many there are, but it's in double figures!

Closing date for the competition is November 30 and the winners will be the first 50 correct entries picked out of the editorial hat.

It's not too hard, so why not enter? Remember, there are 50 chances of winning, so give it a try.

Chop Suey competition

Name _____

Address _____

Number of names found

Return by November 30,
1985 to Chop Suey Contest,
Atari User, Europa House,
6B Chester Road,
Hazel Grove, Stockport
SK7 5NY.

Z	Y	A	A	M	Z	E	Z	B	N	A	I	T	W	N	A	E	A	O	N
T	Y	G	F	O	E	N	R	O	B	O	N	L	A	X	Z	N	Z	H	G
I	D	L	A	E	M	L	R	B	I	S	P	V	R	W	K	Z	S	Z	T
M	T	X	E	F	R	Z	A	R	M	X	R	G	K	A	V	A	J	N	O
O	Z	C	Z	B	N	N	R	B	W	A	M	N	F	E	R	N	I	O	I
R	N	P	G	U	E	C	E	U	E	M	L	S	T	A	V	I	T	I	S
G	R	P	R	R	B	C	D	Y	G	Y	I	A	H	C	I	H	A	Y	N
N	F	U	Y	M	B	T	T	N	M	E	K	G	Y	N	Z	C	P	Z	H
Z	G	G	C	A	E	F	V	A	A	E	T	I	X	A	E	G	E	G	L
M	C	V	N	A	P	A	J	N	B	L	A	F	Z	Q	H	D	S	G	R
S	L	U	M	V	M	E	K	E	Z	I	I	A	B	A	S	H	M	D	Q
A	W	U	K	A	Y	W	H	V	T	L	W	A	I	X	X	I	R	B	F
T	I	A	R	T	A	M	U	S	H	M	A	Y	H	L	Q	G	Y	O	A
V	I	J	N	C	U	M	H	L	U	I	N	S	Q	T	O	O	E	D	I
A	K	E	C	G	P	Z	K	R	O	O	F	E	O	K	B	G	H	A	D
E	G	S	M	G	Y	F	V	F	V	O	O	X	C	G	Q	A	N	T	O
R	B	G	O	I	G	W	N	E	J	O	H	B	X	B	V	Y	I	O	B
O	F	X	M	A	Z	W	A	V	I	E	T	N	A	M	N	M	B	B	M
K	O	T	O	M	L	R	X	S	T	V	A	M	F	Z	V	T	P	V	A
M	Y	D	G	I	W	I	I	P	H	D	U	N	A	F	Y	J	A	C	C

SO far in this series we've looked at Modes 0 to 8. If you have one of the older Atari 400s or 800s that's as far as you can go. This month's article assumes that your machine has a particular chip which some early models lacked.

The chip in question is referred to as GTIA, or Graphics Television Interface Adaptor, and its predecessor was referred to as CTIA. Unless you've had your machine since 1981, the chances are that it contains the GTIA.

If you have got an old machine and don't know which chip it contains, try entering Program 1, a simple routine which cycles through colours and luminosities.

If you do have the GTIA the whole of your television screen will cycle through the colours because the border and background are indistinguishable. However if your machine contains the earlier CTIA the border will be a different colour from the background and so will be visible. Press Break or Reset to stop the program.

Assuming that you're still with me then, I'll take a look at modes 9, 10 and 11. You can access these in the same way as the other modes we've considered, using the Graphics command.

Press Reset to get an empty Mode 0 screen with the Ready prompt at the top. Now type:

GRAPHICS 9

and press Return. The brief flash you'll see is Mode 9, but once the command has been executed the system reverts to Mode 0. If you want to see Mode 9 you've got to keep it there somehow.

In fact we saw the method used

```

10 GRAPHICS 9
20 FOR C=0 TO 25
30 FOR L=0 TO 25
40 SETCOLOR 4,C,L
50 FOR DELAY=1 TO 50:NEXT DELAY
60 NEXT L
70 NEXT C
80 GOTO 20
  
```

Program 1

YOU CAN GET STUNNING 3D GRAPHICS FROM ONLY ONE COLOUR

*Part Seven of DAVE RUSSELL's
series on Atari graphics modes*

last month to keep a full-screen Mode 8. All that's involved is putting the system into a never-ending loop. With a program you can simply use a line which GOTOs to itself. For example:

```

10 GRAPHICS 9
20 GOTO 20
  
```

In immediate execution mode you can use the FOR . . . NEXT construction to create an endless loop. For example, type:

```

FOR A=1 TO 2 STEP:
GRAPHICS 9:NEXT A
  
```

and press Return. The fact that we've used a step size of 0 means that A never reaches its upper limit so the loop goes on forever.

The blank screen which confronts you is Mode 9. Unfortunately there's not much you can do with it in this state. The machine is locked in the loop and so most of the keys produce no response.

You can Break out of it, though, or Reset the machine.

Modes 9, 10 and 11 all have the same resolution of 192 rows x 80 columns with no possibility of a useful text window unless you're prepared

to use a display list interrupt and/or redefine the character set.

If you've been following Mike Rowe's series in *Atari User* you'll know what to do, but for now I'll assume that these modes don't have any text capabilities.

You can produce a Mode 9 screen with a separate window at the bottom very easily. Simply type GRAPHICS 8 and then POKE 623,64. However if you try this you'll soon see why I used the phrase "useful text window" earlier.

In Mode 9 you can only use one colour, but you can have up to 16 luminosities of that colour on the screen. Mode 11 is the opposite, with 16 available colours but only one luminance.

Mode 10 is a bit different in that it allows one background and eight foreground colours. However using these colours from Basic is not as simple as for the other two modes, so we'll leave Mode 10 until the end.

In Modes 9 and 11 we use a combination of SETCOLOR and COLOR commands. Only colour register 4 is used, so in Mode 9 the

Get into top gear for a gruelling challenge

WITH the current trend toward athletics simulations, you might expect a game called **The Great American Cross-Country Road Race** to be all about marathon running — shades of Flanagan's Run, Loneliness of the Long Distance Runner, and all that.

A gruelling race game this certainly is, but not on foot. A powerful racing car is your

mode of transport.

Road Race (well, I'm not typing that title out again) is Activision's latest and follows in the best traditions of Pole Position and Pit Stop.

My thanks to Software Express of Birmingham for speedily arranging to let me have a review copy as soon as it became available here.

At bottom, the game is a



race against other drivers across America. But there's more to it than just wailing past everything on four wheels.

To begin with, you can try to compete against any one of nine fields of already established times. Each field consists of the best results of 10 drivers.

Then there are four west to

east coast crosscountry races to choose from: Los Angeles to New York, Seattle to Miami, San Francisco to Washington, and the US Tour. The latter is a tougher since it requires you to drive through every city on the map.

The map pops up once you've selected your race. And this is much, much more than a bit of gloss — careful planning



It was a wet night when I arrived at the mansion. As I entered, my reporter's instincts made me wonder whether I might be a little too conspicuous. I needn't have worried.

Diver by the fireplace Titania, queen of the faeries, was chatting up a sheik. She was going on about one of her horses, name of Lurking Grue.

A vampire seemed to be enjoying himself hugely. A

six-foot rabbit cavorted with a man-sized peanut butter sandwich. Three mice in dark glasses brushed past Pachen. An astonished strolled up to the bar.

Near the entrance a gorilla was doing a splendid job of looking after the guest's coats.

Other assorted weirdos were discussing everything from politics to local scandals while the more athletic took to the dance floor. By com-

GUILTY UNTIL

person, the cowboy looked the very model of sobriety and good taste. The men in the outlandish cowboy outfit was me.

I wasn't having a bad dream — the nightmare would come later. No, I was attending one of Veronica Ashworth's famous halloween parties.

Actually I was mixing business with pleasure. Please, because I had been invited as a friend of the hostess. Business because my editor thought there might be a good story in it.

The feisty queen, none other than mine hostess Veronica, had clearly been knocking back the Buck's Flax from quite early on. Her words were slurred and she was none too steady on her fairy pins.

Emphasising a point to the sheik, she waved her glass on high and succeeded in stop-

ping alcohol and ice cubes all down her tasseled dress. Using a word that would make an elf's hair curl, she staggered off to clean up.

A little later, I saw Veronica again. She was slumped on the floor of her office elsewhere in the mansion. She was less than dead drunk — she was dead, period.

And if that wasn't enough to dampen my party spirits, my cowboy's leniency, which I could have sworn I hung up in the closet with my damp coat, was wrapped tightly round her pretty little neck.

Just to put the cherry on the cake, a bullet lay by the body. Guess whose gunbelt had one empty cartridge loop? I could almost hear the click of the jail cell door.

So there I was, plunged deep into **Suspect**, a superb new text adventure from

and selection at this stage should help you achieve good times. Equally, slapdash selection may well be regretted before you even reach your first checkpoint.

A flashing circle on the map denotes your point of departure, while a pulsating arrow indicates a possible next stop on your route. By joystick movement, the arrow can be positioned to another destination city. Only those cities connected by a major road to your departure point are available for selection.

A scrolling bulletin board the top of the screen tells you the conditions on the road you have chosen. You have to be careful — things like lane closures, the dreaded roadworks or oil slicks could cause you to lose valuable time.

The weather conditions are no less critical in your route selection. Just like our good old Met Office maps, this one has plenty of those cute little symbols. Snowflakes and rainclouds indicate just that while clouds without rain

indicate fog. It all seems more like Britain than the US of A!

A clock indicates your time of departure. It can be set to any time you like. But watch it — you could end up driving at night or arriving at a city in the middle of the rush hour.

Now the race is on. The screen changes to reveal a Pole Position type scene: blue sky, green sward, a city skyline and your car sitting on a central road which tapers into the distance.

At the foot of the screen, reading from left to right, is a fuel gauge, a rev counter, timer, mileometer, speedometer and redner trap warning.

The timer counts down, showing how much time remains for you to complete this leg of the journey. Failure to reach your destination before the timer reaches zero disqualifies you from the race, and that means you'll have to start all over again.

If you beat the clock the spare time is added to the time allowed for the next stage, so it

pays to burn rubber.

The mileometer also counts down, telling you how much further to your target city. The redner warning lights up when a police speed trap lies ahead — you'll know anyway because sirens start blaring.

You have two choices when hitting a trap — slow down or try to outrun the white police car. If you're caught, you stop dead, the police car pulls alongside, a sardonic message is displayed, like "Where's the fire?" and you're stuck there for several precious seconds. At least you don't get booked!

Left and right movement of the car is controlled by similar movements of the joystick. The fire button is used to accelerate, and pulling back on the joystick applies the brakes.

Gear changing is neatly handled. When the rev counter reaches the 9 o'clock position — and by then the engine is beginning to scream — the fire button is released and a quick forward tap of the joystick causes a change up. Similarly, a quick backward tap shifts the

gears down.

All very easy to get the hang of and, coupled with the appropriate engine noises, adds much to the motor racing atmosphere of the game.

There are four gears. Shift too soon and the car will respond sluggishly. Shift too late and you could blow your engine and have to push the car to the next service station. Pushing is accomplished by stepping doggedly away at the fire button.

You'll also have to push if you run out of petrol. Warning messages are given when you are approaching a service station.

The station is shown as a pink petrol pump and you must pull up beside it. Your car will be automatically refilled and/or repaired.

It's all too easy to overshoot, or stop by mistake at a cactus, when you've been hiring along at 150mph.

If you're not driving very fast, other drivers — and there are lots of them — go flashing past but never hit you from behind. The same cannot be said for you.

If you hit a car while overtaking your car instantly switches to bottom gear and slides over to the side of the track. Luckily, it hasn't stalled.

Arrive at the city within the time limit and you'll be greeted with a jolly tune and a welcome sign. Then it's back to the map to select the route for your next leg.

Run out of time and you'll be told "Sorry" and be out of the race.

The sound effects certainly add to the air of excitement and joystick response is perfect.

The graphics are first rate — I especially liked the changes in skyline, the gradually darkening scene as night descends and the smooth high speed scrolling.

Add these qualities to the planning elements, the combinations of possible routes and the variety of the challenge, and you have a very good race game indeed. This is one I would unhesitatingly recommend to any race game fan.

Bob Chappell

PROVEN INNOCENT

Infocom. Suspect is one of their best and follows in the footsteps of Deadline and Witness, their earlier detective adventures.

Deadline called you in to investigate a suspicious suicide, while Witness placed you as an eye witness to a deadly crime.

In Suspect you find yourself far more embroiled in murder most foul than ever before — all the evidence points to you as the prime suspect. Unless you can find out who really dunnit and pronto, your reporting days are over.

The case is stacked against you from the outset. There's the rope for starters. Then there's the bullet and gunbelt. You're also a — suspect.

Yes, it's a set-up all right but since you know you're not a killer, it follows that the real murderer must be among the

motley collection of upper-crust characters present at the party.

The police are soon on the scene, among them Sgt. Duffy, of Deadline fame. What you must do is build up a case by exploring the mansion and grounds, watching and talking to the various characters, and analysing and deducing.

Only by gathering enough irrefutable proof and presenting it to the police can you establish your innocence and another's guilt.

You can't make a citizen's arrest — you have to convince the detective to do that. You can accuse people though, but much good will it do you if you go around making wild allegations.

You have but a few hours (game time) to solve the mystery. Failure to do so will result in your being arrested

and found guilty of second degree murder.

Suspect is graded as an advanced adventure, so it's likely you'll be arrested and convicted many times over many weeks. Never mind, the preceding stimulation and entertainment more than compensates for being falsely imprisoned.

All the Infocom hallmarks are here, massive vocabulary, sophisticated input parser, dazzling and detailed prose, twists and turns, good humour, plenty of original puzzles and multiple solutions.

No doubt about it, this is yet another excellent adventure from Infocom — how do they keep it up? I excuse Infocom of being mindbogglingly brilliant.

Prove their guilt beyond a shadow of a doubt yourself by buying Suspect. I rest my case.

Bob Chappell

Arcade action deep in the pond

WHY not take a break from those shoot-em-up arcade games and take a visit to a quiet country pond? Starcade can take you there with **Savage Pond**, their interpretation of wild life under water.

Quiet it may be, peaceful it certainly isn't. In this fast arcade game you start by playing the role of a tadpole struggling to survive to adulthood.

Just like the inhabitants of any country pond, you have to avoid the perils of other insects and animals striving to live in there with you.

Survival of the fittest would appear to be an apt rule in this scenario.

Using the keyboard or joystick you must guide your tadpole through its stage of immaturity, fattening it as you guide it round the pond digesting amoeba.

Now and again a fat juicy worm falls into the water and eating this increases your worm count by one.

Every time your worm count reaches five a beetle larva appears and if you can polish this off you take another step along the long path of evolution.

In stage one a multi-coloured dragonfly buzzes about above the pond dropping its eggs into the water. It is vital that you eat these as they sink, otherwise they settle into the cover of deady hydra and become unretrievable.

When they hatch at the bottom of the pond a little dishies off the screen only to return as a deadly dragonfly nymph whose staple diet is... yes, tadpoles.

He relentlessly chases you until he either catches you or

you throw him out by outswimming him over the screen.

In stage two a bulldozer comes along, adding another hazard as it dumps radioactive waste into the pond.

If you can survive all this and manage to become a frog, with a flick of your long sticky tongue you can catch that pestering dragonfly as it buzzes overhead. There's thanks for you.

If having got this far you have had all your eggs and tadpoles destroyed, the com-

puter dating agency comes into action and provides you with a lady frog.

After a loving embrace you provide a specimen of frog spawn and depart for pastures new.

The spawn comes to rest at the bottom of the pool before hatching to give you another chance to start all over again.

As it progresses the program introduces many more wonders of the deep such as blood worm, jelly fish, spiders, water fleas and bumble bees.

They all have their role to play in this real life adventure.

Overall the game is fun to play and has very good graphics. The sound is effective and complements the game very well.

The instructions are clear and concise and give a good insight not only to the game, but to the species that you will meet and their descriptions.

The 16k cassette costs £7.95 - a bargain in my opinion.

David Andrews



A touch of the Bruce Lees

Sit down at your Aten, hold your joystick at an aggressive angle, screw up your face, let rip a bloodcurdling shout and go to it.

Well, even if you're not acting this strangely at the start of playing English Software's **Chop Suey**, I guarantee you will be after just a few minutes.

This martial arts simulation really gets to you. If you thought you were just a gentle pacifist at heart, better think again after you've tried this game. You might discover a latent Bruce Lee has been lurking undetected under your skin.

The action takes place, not in the flesh, but in a gymnasium, but in what appears to be a theatre.

In fact it's very similar to the traditional setting used for the Olympic Games. In the lower

portion of the screen, looking up at an enclosed stage, are three rows of spectators who fidget around from time to time to let you know they're wide awake.

On stage is where all the leaping, kicking and punching takes place.

The two dreadlocked Kung-Fu participants are dressed similarly - loose, white pyjama-like costumes complete with black belts.

There are three options: player versus player, player versus computer and, if you want to select demo mode, computer versus computer. The demo mode will automatically begin if you just sit there and do nothing.

In addition you can choose between the laughingly named slow or fast modes. Slow mode is quite fast enough, think you very much. Fast mode has the two

players dashing around like characters from one of those old Keystone Kop movies. Move up to this level only when you've become really adept at the art.

There are eight moves at your disposal - two shuffles, three kicks, one jab and two jumps. All are executed by moving the joystick to the appropriate compass position.

Pressing the fire button lets you make one further move - a smart about-turn from the direction you are currently facing.

The quick shuffles take you to the left or right. The one punch in your repertoire is a stiff-armed jab. Used well it can have very gratifying results.

Kicks come in three sizes: the low sweep to the opponent's legs, the sharp kick

to the midriff end, my personal favourite, the high kick.

Executing the high kick when your opponent is some distance from you is most satisfying – you arc smoothly through the air with your leading leg outstretched as dangerously as a warrior's lance.

There are two leaps. One is a simple vertical jump into the air, the other a full-blooded somersault taking you right over the top of your opponent's head to the far side of the stage.

At the bottom of the screen, each player has a Power gauge, pain-level indicator. It changes colour as punishment is soaked up. When it starts to flash the player is in a fragile state of health and one more thump will bring him to the floor.

The player recovers after a brief respite but always has a residual pain level which rises after each knockdown. When this reaches an insupportable level that player is retired and the opponent declared the winner.

It is comforting to note that nobody ever gets completely flattened – falling down on one knee and grimacing at the floor is the worst that can happen to you.

Apart from your opponent's



flits and feet, there is one other hazard. From time to time an air vent opens in the stage ceiling and a large scorpion drops down to scuttles across the stage.

You have to leap to avoid its poisonous bite. David Attenborough would not be amused – scorpions are supposed to have lethal stings, not bites!

The scorpion interludes distract somewhat from the main business at hand and the game is exciting enough without them. Even so, they do present an added challenge.

Scorpions aside, the only minor criticism I have is that the contestants are identical

twins. If you've both just finished cowering around the stage and have ended up close to each other, it is possible to get in a muddle as to which fighter is yours. Differently coloured belts or hair, for example, would have helped.

The two-player option is hugely entertaining but no doubt much of the time you'll play against the computer. And that option is just as much fun.

The computer opponent seems pretty easy meat to start with, a few swift jabs usually sufficing to bring him quickly to his knees. However, you mustn't let that mislead you into leaving your Atari and

picking a fight with the local Third Den.

For once duffed up, the first computer opponent is immediately replaced by another but considerably more skilled fighter. And there's six more where those came from, each more experienced and tougher than the last. The challenge lies in seeing if you can out-Kung all eight contenders.

One item intrigued me. The cassette inlay hints that excellent play may be rewarded. Rumour has it that the famous Kung-Fu talent scout Foo Yung (given) and his son, Sping Lo (ditto) are in the audience.

You'll just have to play well to see if that's of any significance – my play wasn't even up to beating opponent three.

Colour is excellent while sound effects, introductory music, whooshes and beeps enhance the enjoyment.

But it is in the animation where the game excels. The players' movements are very realistic – the smoothness of the flying kick alone has to be seen to be believed.

Chop Suey is superb, and at only £8.95, this has got to be one of the best Atari buys of the year. Go get it, grasshopper.

Bob Chappell

Saving a life requires dedication

BIO-DEFENCE, from Tymec, appears to be an original idea in computer software. The object of the game is to keep a patient's temperature below the level at which he dies.

There are two separate parts to the game. In the first an outline of the human body is displayed horizontally across a grid of approximately 500 squares.

Using a joystick, you move a cursor from square to square within the body outline until you find an area of infection. There is no skill attached to finding this – it just suddenly appears, indicated by a orange dot.

From here you progress on to part two. This scenario is

acted out in the infected area, which is laid out like a maze.

You play the part of what appears to be a wise cell, looking something like an amoeba, and your task is to soak up most of the bacteria around you. I say "appears" because there were no instructions with my advance review copy and curiously, none on the screen.

There are, in fact, several different sizes of bacteria and you should only be chasing the smaller ones. Any contact with the largest variety results in a darkening of your colour.

Should you contact these too often within a short space of time, you turn black and die and the patient's temperature rises by one degree.

You can eat the big blobs but you've got to time it right, hiding in your niche at the bottom of the screen. Of course, while you're hiding the bugs are multiplying.

Should you succeed in absorbing all the bugs, you automatically return to the first part of the game and start to search again for another infected area.

Once you find one it's back

to work as a bug gobbler until such time as you get zapped too often by the big boys, and the patient's temperature gets so high that he snuffs it.

The more successful you are in your bacteria bashing the more numerous and vicious are the enemy in subsequent locations.

The graphics are quite nice but don't really do the Atari justice, and the sound is nothing to write home about. An attempt has been made to synthesise speech, but the result is almost unrecognisable.

The game was fun the first few times I played it, but I didn't find enough variety to maintain interest.

David Andrews

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The biggest bulletin board of them all

The number of bulletin boards is growing rapidly. New ones are springing up in all parts of Britain and all over the world, with people of like minds chatting to each other on all manner of subjects. The only snag is that the vast majority are single-user boards – which means lots of other people are also trying to make contact and all too often all you get is the engaged tone. But with the MicroLink bulletin board there is no limit to the number of people using it at the same time. And no limit to the number of categories that can be displayed on the board.

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Software over the telephone

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AT 11

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waves down the screen. Basic is just too slow.

Demo #6 is the same program with a machine code routine doing the job of increasing the 1D screen location pointers in the display list. Now the screen moves along in a single block.

The next step is to add the smooth scroll. Demo #7 does this with an improved machine code routine for the coarse scroll. However it is less generalised, and will only work for a 10 line screen scrolling in one direction.

```

10 REM *****
20 REM *****
30 FOR I=1700 TO 1710:GOTO A:POKE I,0:
NEXT I:REM NOW MACHINE CODE
40 DATA 184,178,184,132,258,184,132,25
4,188,8,184,184,145,254,288,288,288,28
2,288,244,96
100 REM 05(1802):05(1803):POKE I,0:
110 I=1700 STEP 1:1803:05(1803):NEXT I
120 REM 05(1803):05(1804):POKE I,0:
130 REM 05(1803):05(1804):POKE I,0:
140 REM 05(1803):05(1804):POKE I,0:
150 REM 05(1803):05(1804):POKE I,0:
160 REM 05(1803):05(1804):POKE I,0:
170 REM 05(1803):05(1804):POKE I,0:
180 REM 05(1803):05(1804):POKE I,0:
190 REM 05(1803):05(1804):POKE I,0:
200 REM 05(1803):05(1804):POKE I,0:
210 REM 05(1803):05(1804):POKE I,0:
220 REM 05(1803):05(1804):POKE I,0:
230 REM 05(1803):05(1804):POKE I,0:
240 REM 05(1803):05(1804):POKE I,0:
250 REM 05(1803):05(1804):POKE I,0:
260 REM 05(1803):05(1804):POKE I,0:
270 REM 05(1803):05(1804):POKE I,0:
280 REM 05(1803):05(1804):POKE I,0:
290 REM 05(1803):05(1804):POKE I,0:
300 REM 05(1803):05(1804):POKE I,0:
310 REM 05(1803):05(1804):POKE I,0:
320 REM 05(1803):05(1804):POKE I,0:
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340 REM 05(1803):05(1804):POKE I,0:
350 REM 05(1803):05(1804):POKE I,0:
360 REM 05(1803):05(1804):POKE I,0:
370 REM 05(1803):05(1804):POKE I,0:
380 REM 05(1803):05(1804):POKE I,0:
390 REM 05(1803):05(1804):POKE I,0:
400 REM 05(1803):05(1804):POKE I,0:
410 REM 05(1803):05(1804):POKE I,0:
420 REM 05(1803):05(1804):POKE I,0:
430 REM 05(1803):05(1804):POKE I,0:
440 REM 05(1803):05(1804):POKE I,0:
450 REM 05(1803):05(1804):POKE I,0:
460 REM 05(1803):05(1804):POKE I,0:
470 REM 05(1803):05(1804):POKE I,0:
480 REM 05(1803):05(1804):POKE I,0:
490 REM 05(1803):05(1804):POKE I,0:
500 REM 05(1803):05(1804):POKE I,0:
510 REM 05(1803):05(1804):POKE I,0:
520 REM 05(1803):05(1804):POKE I,0:
530 REM 05(1803):05(1804):POKE I,0:
540 REM 05(1803):05(1804):POKE I,0:
550 REM 05(1803):05(1804):POKE I,0:
560 REM 05(1803):05(1804):POKE I,0:
570 REM 05(1803):05(1804):POKE I,0:
580 REM 05(1803):05(1804):POKE I,0:
590 REM 05(1803):05(1804):POKE I,0:
600 REM 05(1803):05(1804):POKE I,0:
610 REM 05(1803):05(1804):POKE I,0:
620 REM 05(1803):05(1804):POKE I,0:
630 REM 05(1803):05(1804):POKE I,0:
640 REM 05(1803):05(1804):POKE I,0:
650 REM 05(1803):05(1804):POKE I,0:
660 REM 05(1803):05(1804):POKE I,0:
670 REM 05(1803):05(1804):POKE I,0:
680 REM 05(1803):05(1804):POKE I,0:
690 REM 05(1803):05(1804):POKE I,0:
700 REM 05(1803):05(1804):POKE I,0:
710 REM 05(1803):05(1804):POKE I,0:
720 REM 05(1803):05(1804):POKE I,0:
730 REM 05(1803):05(1804):POKE I,0:
740 REM 05(1803):05(1804):POKE I,0:
750 REM 05(1803):05(1804):POKE I,0:
760 REM 05(1803):05(1804):POKE I,0:
770 REM 05(1803):05(1804):POKE I,0:
780 REM 05(1803):05(1804):POKE I,0:
790 REM 05(1803):05(1804):POKE I,0:
800 REM 05(1803):05(1804):POKE I,0:
810 REM 05(1803):05(1804):POKE I,0:
820 REM 05(1803):05(1804):POKE I,0:
830 REM 05(1803):05(1804):POKE I,0:
840 REM 05(1803):05(1804):POKE I,0:
850 REM 05(1803):05(1804):POKE I,0:
860 REM 05(1803):05(1804):POKE I,0:
870 REM 05(1803):05(1804):POKE I,0:
880 REM 05(1803):05(1804):POKE I,0:
890 REM 05(1803):05(1804):POKE I,0:
900 REM 05(1803):05(1804):POKE I,0:
910 REM 05(1803):05(1804):POKE I,0:
920 REM 05(1803):05(1804):POKE I,0:
930 REM 05(1803):05(1804):POKE I,0:
940 REM 05(1803):05(1804):POKE I,0:
950 REM 05(1803):05(1804):POKE I,0:
960 REM 05(1803):05(1804):POKE I,0:
970 REM 05(1803):05(1804):POKE I,0:
980 REM 05(1803):05(1804):POKE I,0:
990 REM 05(1803):05(1804):POKE I,0:
1000 REM 05(1803):05(1804):POKE I,0:

```

Demo #6

There's that flicker again...

You now have your smooth horizontal scrolling. Disappointed? I would be, because there's that flicker and flashing again.

The same problem arises as before, because the changes happen part way through drawing the screen, only now things are worse because so many alterations are being made to get smooth scrolling.

As in vertical scrolling, the only way around this is to use machine

code during the vertical blank interrupt (for new readers this is the small delay between the drawing of each screen).

Although VBI routines are too complicated to discuss at the end of this article, Demo #8 will give you some idea of how much improvement they can give in scrolling.

As a parting note, on the XL and XE models smooth, upward vertical scrolling is very easy in Graphics D.

Try this. First load a relatively long Basic program. Secondly type POKE 622,255 then press Return. Thirdly type GRAPHICS D then Return. Now list the program.

```

10 REM *****
20 REM *****
30 FOR I=1700 TO 1710:GOTO A:POKE I,0:
NEXT I:REM NOW MACHINE CODE
40 DATA 184,178,184,132,258,184,132,25
4,188,8,184,184,145,254,288,288,288,28
2,288,244,96
100 REM 05(1802):05(1803):POKE I,0:
110 I=1700 STEP 1:1803:05(1803):NEXT I
120 REM 05(1803):05(1804):POKE I,0:
130 REM 05(1803):05(1804):POKE I,0:
140 REM 05(1803):05(1804):POKE I,0:
150 REM 05(1803):05(1804):POKE I,0:
160 REM 05(1803):05(1804):POKE I,0:
170 REM 05(1803):05(1804):POKE I,0:
180 REM 05(1803):05(1804):POKE I,0:
190 REM 05(1803):05(1804):POKE I,0:
200 REM 05(1803):05(1804):POKE I,0:
210 REM 05(1803):05(1804):POKE I,0:
220 REM 05(1803):05(1804):POKE I,0:
230 REM 05(1803):05(1804):POKE I,0:
240 REM 05(1803):05(1804):POKE I,0:
250 REM 05(1803):05(1804):POKE I,0:
260 REM 05(1803):05(1804):POKE I,0:
270 REM 05(1803):05(1804):POKE I,0:
280 REM 05(1803):05(1804):POKE I,0:
290 REM 05(1803):05(1804):POKE I,0:
300 REM 05(1803):05(1804):POKE I,0:
310 REM 05(1803):05(1804):POKE I,0:
320 REM 05(1803):05(1804):POKE I,0:
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480 REM 05(1803):05(1804):POKE I,0:
490 REM 05(1803):05(1804):POKE I,0:
500 REM 05(1803):05(1804):POKE I,0:
510 REM 05(1803):05(1804):POKE I,0:
520 REM 05(1803):05(1804):POKE I,0:
530 REM 05(1803):05(1804):POKE I,0:
540 REM 05(1803):05(1804):POKE I,0:
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570 REM 05(1803):05(1804):POKE I,0:
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590 REM 05(1803):05(1804):POKE I,0:
600 REM 05(1803):05(1804):POKE I,0:
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890 REM 05(1803):05(1804):POKE I,0:
900 REM 05(1803):05(1804):POKE I,0:
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```

Demo #8

Demo #7

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Have a heart to heart chat with your Atari

DENIS KINANE comes up with a program to teach your computer how to win an argument

CONVERSE is an Elize type program which simulates a conversation between the user and the computer but differs from similar ones by allowing the Atari to learn new key words and replies.

It thus learns from conversations continuously and eventually will be able to converse without recourse to the learning procedures. It can also be altered easily to give the computer different "personalities".

Atari Basic has often been criticised for its lack of string handling functions and for not supporting string arrays. This program provides a fairly extensive demonstration and tutorial on both string handling and file handling with the Atari.

It includes informative REM statements and should be easy to follow.

The string handling routines include simulating a string array in Atari Basic, a string searching routine, routines for joining and patching up strings and exchanging words within a string.

The disc handling techniques used are standard files for printing and inputting, NOTE and POINT commands for random access of files and the PUT/GET files for holding numeric variables. All of these files can be updated during a program run, and are used in all subsequent program runs.

Finally the program can be easily used with the SAM and Rectler programs available from Don't Ask Software, thus allowing the computer to voice the replies rather than typing on the screen. To do this simply add the following lines:

```
100 DIM $ANS(128)
1252 FS:"YOU ARE SAYING TO ME"
: $ANS=FS :G=USR0(199)
1755 $ANS=F$16:USR0(199)
```

In simulating a conversation between the computer and the user, Converse initiates the conversation and then accepts a sentence inputted by the user.

This sentence is then searched for specific key words which are contained in a file created on the first run of the program.

The file is then used to create a

simulated string array and the keywords taken from the array for the search procedure.

On subsequent runs the keyword file is simply read and the contents placed in the simulated string array. This simulated array is necessary as Atari Basic does not support string arrays.

Atari Basic does not have an INSTRING or specific string searching facility, so Converse uses an instring routine to search the input string to find keywords.

On locating a keyword the program gets a reply, chosen at random from a variable number of suitable replies for the given keyword, in the reply file.

The reply is examined to see if it requires addition of a terminal phrase from the user input. If so the phrase is examined for words which will be required to be exchanged in order to preserve grammatical sense when the phrase is returned by the computer.

These words — called swap words — are personal pronouns and verb conjugations read from simple data statements within the program.

Once the word is swapped the phrase is reconstructed and tacked on to the reply and the complete reply is printed.

The program loop is then begun again as the user is prompted for the next input.

If during the conversation the program does not find a keyword in the input the user is prompted to teach the computer a new keyword and some suitable replies. These are saved to disc and used in all subsequent program runs.

If you choose the program to run in Learn mode any input that has no keyword will cause the program to ask for new keywords and replies. If the program is not in Learn mode and does not recognise keywords in the input it will give a "bluff" type response.

Thus the conversation is continued without the computer actually knowing what it is talking about — a situation I find myself in all too often.

When the new keyword is inputted you are asked to input the number of

[illegible][illegible][illegible]

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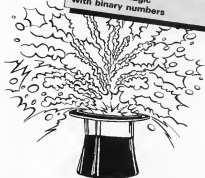
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Hey presto!
A touch of magic
with binary numbers



LAST month we saw how the binary operators AND and OR can be used to combine pairs of binary numbers. The example we used was that of turning machines on and off under computer control.

Of course these operators have far more uses than this. To illustrate one, consider the Ascii character set. The codes for A to Z are in the range 65-90, while their lower case equivalents, a to z, are in the range 97-122.

Looked at in this decimal way, there seems little relation between the upper and lower case sets. If we look at them in hex, though, we can see that:

A...Z runs from &41 to &5A

a...z runs from &61 to &7A

If you can see the pattern.

In fact the numerical Ascii difference between a lower case character and its upper case equivalent is always &20. Looked at in binary, this difference is %00100000. In other words, bit five is set for lower case, and is clear for upper case - remember, we start with the zero bit.

For example, the code for A is:

%01000001

whereas the code for a is:

%01100001

Similarly, the code for Z is:

%01011010

and the code for z is:

%01111010

In both cases the only difference is in bit five.

So if we have an Ascii code for a letter, we can force it to be upper case by clearing bit five to zero. We can do this by ANDing the code for the letter with the mask %11011111 (&DF).

Remember, the bits in the mask that contain 1 will leave the corresponding bits in the Ascii code for the letter unchanged in the resultant byte, whether they be 0 or 1. On the other hand, the bit in the mask with 0 in it will force the matching result bit to be zero.

So:

```
00100001 ( the code for a )
AND 11011111 ( the mask = &DF )
gives 00100001 ( the code for A )
```

It won't surprise you to learn that

we can reverse the procedure - forcing upper case into lower case - by using OR to set bit five. This time the mask will be %00100000, the 0s leaving things unchanged in the resultant byte, the 1 forcing a corresponding 1 in bit five of the result bit.

So:

```
01011010 ( the code for Z )
OR 00100000 ( the mask = &20 )
gives 01111010 ( the code for z )
```

One further use for AND is to test if a particular bit in a byte is set. We just AND that byte with a mask consisting of a 1 in the bit being tested, with 0s in all the rest. The bits with 0 in them, of course, set the corresponding bits in the resultant byte to zero.

Since the rest of the bits are already cleared to zero by the mask, the only thing that could stop the entire resultant byte being zero is the value derived from the bit under investigation:

- If that bit is set, the corresponding result bit will be set also (1 AND 1 = 1) so the resultant byte will be non-zero.
- If the bit being checked is clear,

the corresponding result bit will be clear (0 AND 1 = 0) so the resultant byte is zero.

In machine code we can differentiate between zero and non-zero bytes fairly easily.

Let's see how this works in practice. If we were testing for bit four being set, the mask would be %00010000.

Try ANDing this value with %000110100, where bit four is set, and also with %00101100, where bit four is clear, and you'll see that the resulting bytes are non-zero and zero respectively.

So what of EOR/XOR? Well, its function is to return a 1 if the pair of bits being combined differ, and 0 if they're identical. Given this, we can use XOR to test which bits in a byte differ. For example:

```
01000110
XOR 01001101
gives 00001111
```

where the set bits neatly mark out the differing pairs.

We can also use EOR/XOR to complement or NOT a byte, by EORing it with a mask of %11111111. Since the mask is all 1s, the result depends entirely on what's in the byte under investigation. Bits that contain 1s will give 0

MIKE BIBBY
concludes his series
on binary numbers

Going loopy over strings



I TOLD you a lie last month when I said we'd be continuing with loops! Before that we've an interesting diversion into the world of strings.

Strings are simply groups of characters, letters, numbers or punctuation marks and so on, "strung" together. The micro remembers them as a group. More often than not, they're words or sentences as in:

```
PRINT "This is a string"
```

Notice the quotes — they're the way we signal to the Atari that it's a string we're dealing with. Also, whatever's between the quotes is reproduced exactly so:

```
PRINT "This is a string"
```

and

```
PRINT " This is a string"
```

will give different outputs, since the second has two spaces between the quotes and the first word.

We saw that we can label strings with variables as in:

```
STRING$ = "This is a string"
```

The rule for string names are identical to those for numeric variables, except that string variable names must end with a \$

Perhaps the most important thing about strings is that you have to tell the micro in advance the maximum

Part VII of MIKE BIBBY's guide through the micro jungle

size they're going to be. That is, you have to DIMension them as in:

```
30 DIM STRING$(6)
```

In this case, *STRING\$* can only ever be six characters long. Of course, it can be under six long, it just can't be over six, as Program 1 illustrates.

If you run it, you'll see the following output:

```
12345
123456
123456
123
```

I think you can guess what's

happened to the 1234567 you assigned to *STRING\$* in line 80 — it was one character too long, so the Atari simply ignored the last character.

However, the micro doesn't mind the string being shorter than maximum size, as shown by its accepting 12345 quite happily.

And just as you can lengthen strings, so you can shorten them, as shown by the assignment of 123 in line 100.

After running the program, enter:

```
PRINT STRING$
```

and you'll find that it's 123, as the program left it. Now enter:

```
STRING$**
```

Notice that the two quotes go directly side by side, with no space between. Then enter:

```
PRINT STRING$
```

This time instead of printing 123 as the value of the string, absolutely nothing appears on the screen save for the READY prompt! This is because the value of *STRING\$* is absolutely nothing since:

```
STRING$**
```

has absolutely nothing between the quotes, not even a space. This string

```
10 REM PROGRAM 1
20 PRINT CHR$(123)
30 DIM STRING$(6)
40 STRING$="12345"
50 PRINT STRING$
60 STRING$="123456"
70 PRINT STRING$
80 STRING$="1234567"
90 PRINT STRING$
100 STRING$="123"
110 PRINT STRING$
```

Program 1

is called the null string and we use it when we wish to wipe out, or nullify, a string.

To see some more aspects of strings on the Atari, assign:

```
STRING$="HELLO"
```

and then enter:

```
PRINT LEN(STRING$)
```

You should receive the answer:

5

You see, *LEN* is a function that tells you how long a particular string is. We've used it with a string variable, but you can, if you wish, use it with a string in quotes as in:

```
PRINT LEN("ABC")
```

This might seem a bit cockeyed to you, though. Why do we need *LEN* since if the string's in quotes you can see how long it is, and if it's a variable you've already dimensioned it? Don't forget, though, that a string doesn't have to be the size you've dimensioned it, it can be less.

Often, when you're using *INPUT* with a string variable, you won't be too sure how long the string will be

LEN lets you find out so you can, for instance, allow for different lengths in your screen layout.

Before we leave *LEN*, try to find the length of the null string with:

```
PRINT LEN("")
```

You'll receive the answer zero, proving that the null string consists of absolutely no characters whatsoever.

Incidentally, we've only been able to do all this assigning to *STRING\$* because we've dimensioned it when we ran Program I. If we tried to assign to a new variable as in:

```
TEST$="HELLO"
```

we get an error message, since *TEST\$* hasn't been dimensioned.

Anyway, at present *STRING\$* should hold the value *HELLO*. Try entering the following:

```
PRINT STRING$(1)
```

and you'll see *HELLO* appear. Now try:

```
PRINT STRING$(2)
```

and *ELLO* should arrive.

```
PRINT STRING$(3)
```

will give you *LLO*, while:

```
PRINT STRING$(4)
```

will produce *LO*.

No prizes for guessing what:

```
PRINT STRING$(5)
```

gives you!

What's happening is that by following *STRING\$* with the brackets, only part of the string is printed. It's as if we're taking just a slice of the string.

The start of the slice will be the character whose position in the string is given by the number in brackets. It finishes at the end of the string.

So *STRING\$(3)* would give us from the third letter of *STRING\$* to the end, giving *LLO*. With *STRING\$(1)* the whole string is printed out since the 1 means the slice starts at the first letter. On the other hand *STRING\$(5)* gives us a single character slice, since the fifth letter of the string is also the last.

See what happens when you try:

```
PRINT STRING$(6)
```

Program II gives a graphic example of this slicing using a *FOR* - *NEXT* loop. Here the loop variable *START* decides the starting position of the slice. Each time through the loop the slice starts further up the string.

```
10 REM PROGRAM II
20 PRINT CHR$(125)
30 REM STRING$(10)
40 STRING$="ABCDEFGHIJ"
50 FOR START=1 TO 10
60 PRINT STRING$(START)
70 NEXT START
```

Program II

Let's look at this in detail. The first part of our program clears the screen then sets *STRING\$* equal to *ABCDEFGHIJ*. We then enter the loop.

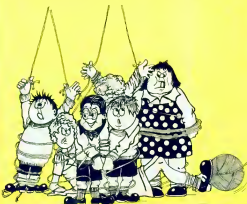
The first time through *START* has the value 1 so line 60:

```
60 PRINT STRING$(START)
```

is in effect:

```
60 PRINT STRING$(1)
```

If you've been following this you'll see it means we can print out from the first character of *STRING\$* to the



last. That is it prints:

```
ABCDEF012
```

The next time through the loop though *START* is 2, so line 60 is in effect:

```
60 PRINT STRING$(2)
```

so we can start at the second character of *STRING\$* and continue to the end to give:

```
BCDEF012
```

On the next cycle, *START* is 3, line 60 being:

```
60 PRINT STRING$(3)
```

which gives you:

```
CDEF012
```

and so on.

Finally, *START* has the value 10, so line 60 prints out the slice from the 10th character to the end — the single letter J.

Actually we can slice off any part of a string we want by giving two numbers in brackets separated by a comma. The first number specifies the start of the slice and the second the finish.

Enter the following (assuming you've run Program II):

```
PRINT STRING$(2,6)
```

You'll get back:

```
BCDEF
```

Remember, *STRING\$* is ABCDEFGHIJ, so *STRING\$(2,6)* gives us the slice with its second letter, B, and finishing with its sixth letter F. Notice you get five letters, not the four that 6-2 might lead you to expect.

Program III allows you to experiment with slicing *STRING\$*. Initially *STRING\$* is printed out, then you'll be prompted for the number of the character you want to start from, and the number you want to finish with.

The slice you've requested will be printed out, and the process repeated. (You can escape from the loop by pressing the Break key.)

Play around with various slices until you're sure you understand how they operate, then have a look at how

```
10 REM PROGRAM III
20 PRINT CHR$(255)
30 DIM STRING$(10)
40 STRING$="ABCDEFGHIJ"
50 PRINT STRING$
60 PRINT "START";
70 INPUT ST00T
80 PRINT "FINISH";
90 INPUT F00T0
100 PRINT STRING$(ST00T,F00T0)
110 PRINT
120 GOTO 50
```

Program III

Program III actually works. Lines 60 and 80 prompt for an input value for the aptly named numeric variables *START* and *FINISH*. Line 100:

```
100 PRINT STRING$(START,FINISH)
```

then gives us exactly the slice we want.

For instance, if we wanted a slice from the second character to the sixth, we would input 2 for *START* and 6 for *FINISH*. Line 100 then becomes effectively:

```
100 PRINT STRING$(2,6)
```

which gives us the slice we require, starting at the second character of *STRING\$* and finishing with the sixth.

Program IV uses this slicing technique to give us the inverse of Program II by printing out the first character of the string, then the first two, followed by the first three and so on.

The loop formed by lines 50 to 70 does the actual printing out. The slice always starts at the first character of *STRING\$* so the first number inside the brackets in line 60 is fixed at 1:

```
60 PRINT STRING$(1,FINISH)
```

FINISH varies from 1 to 10 throughout the loop, so the end of our slice gradually gets further and

```
10 REM PROGRAM IV
20 PRINT CHR$(255)
30 DIM STRING$(10)
40 STRING$="ABCDEFGHIJ"
50 FOR FINISH=1 TO 10
60 PRINT STRING$(1,FINISH)
70 NEXT FINISH
```

Program IV

further along *STRING\$*, giving us our triangle of letters.

After you've run Program IV enter:

```
PRINT STRING$(LEN(STRING$))
```

As you'll see, the whole of *STRING\$* is printed out. The reason is that *LEN(STRING\$)* gives us 10, the length of *STRING\$*. This means that what we've entered above boils down to:

```
PRINT STRING$(1,10)
```

Since *STRING\$* starts at its first character and finishes with the tenth, the whole of the string is printed out.

Finally, take a look at Program V. We're using the fact that:

```
PRINT STRING$(5,5)
```

prints out just the fifth character of *STRING\$*, since the slice starts and ends with the fifth character. Instead of specifying a number, however,

```
10 REM PROGRAM V
20 PRINT CHR$(255)
30 DIM STRING$(10)
40 STRING$="ABCDEFGHIJ"
50 FOR LETTER=1 TO 10
60 PRINT STRING$(LETTER,LETTER)
70 NEXT LETTER
```

Program V

we've made the loop variable, *LETTER*, which ranges from 1 to 10, so line 60 reads:

```
60 PRINT STRING$(LETTER,LETTER)
```

This will pick out and print each letter of *STRING\$* in turn, as you'll see when you run it.

By the way, we could have written line 50 as:

```
50 FOR LETTER = 1 TO LEN(STRING$)
```

Since *LEN(STRING\$)* is 10, this is equivalent to the original line 50. It has the advantage that, if you missed out one of the letters of *STRING\$* when you typed in line 40, the *LEN(STRING\$)* automatically compensates for the error, calculating the true length.

Well, perhaps I didn't mislead you too badly after all — we've used quite a few loops this month. And next month there'll be even more!

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Make yourself a...

BITWISE OPERATOR

with these routines by
KEVIN EDWARDS

THE program listed here contains three useful subroutines to provide bit by bit (bitwise) operators for the logical functions AND, EOR and OR.

Atari Basic already recognises the two commands AND and OR, but these are treated as logical operators. In other words their result will be either true (1) or false (0).

To illustrate this we'll use a simple Basic program:

```
10 A=12:B=13
20 IF A=12 AND B=13 THEN PRINT"YES"
30 END
```

As you can see, it tests to see if A is 12 AND B is 13. Since this is true (1) the THEN statement is executed. But if B were changed to 100 the result would be false (0) and the THEN statement would be ignored.

However the operators can be used in bitwise fashion – not using Atari Basic commands, though.

With bitwise operations all corresponding bits of two numbers are compared to produce another bit – the result bit. Table I lists the result bits for AND, EOR and OR operations.

	1st bit	2nd bit	Result
AND	0	0	0
	0	1	0
	1	0	0
	1	1	1
EOR	0	0	0
	0	1	1
	1	0	1
	1	1	0
OR	0	0	0
	0	1	1
	1	0	1
	1	1	1

Table I – Result bits for AND, EOR and OR

You can find more information on this subject in the Bit Wise articles in Atari User for August and September 1985.

The machine code routines provided by Program I permit you to use all three of the bit by bit operations on two 16 bit numbers. Table II lists the start addresses for each machine code routine.

Start address	Operator	Subroutine line number
1552	EOR	7200
1572	OR	7300
1592	AND	7400

Table II – Start addresses for each routine

Each operator has been given its own Basic subroutine from which it should be called. This saves you repeating lines and lines of USR commands. Before the routines can be used the variables NUM1 and NUM2 must be set up with the two numbers which are to be compared.

The appropriate routine is then called and the result is returned in the variable RES. The end column in Table II shows the Basic line number for each operator.

You can, in fact, call the routines yourself, although it's a bit messy. First assign two variables with the numbers to be operated upon – VAR1 and VAR2 say. Next find the location of the required function – see Table II.

Once this has been done the command USR is used to execute the routine and return the result:

```
A=USR(ADDR, VAR1, VAR2)
```

A will now contain the result.

The subroutine at line 7000 is responsible for poking the machine code data into memory.

This must be called at the start of any program which makes use of the bitwise routines. The example listed

below shows how the two numbers 255 and 83 are ANDed:

```
10 REM Set up machine code
20 GOSUB 7000
30 REM The two parameters
40 NUM1=255:NUM2=83
50 REM Call AND routine
60 GOSUB 7400
70 REM PRINT result
80 PRINT RES
90 END
```

If you change line 60 to GOSUB 7300 the two numbers will be ORed. See if you can work out the line number for EOR.

All line numbers below 7000 in Program I are there to test the three routines. When you require the bitwise operations in your own programs you only need lines 7000 onwards.

And that's it. There's plenty of things you can do with them. Why not have a go at printing hexadecimal and binary numbers?

```
10 REM BITWISE OPERATION
20 REM BY Kevin Edwards
100 GOSUB 7000:REM SET UP M'CODE
110 NUM1=255:NUM2=83
120 GOSUB 7400:REM EOR
130 ? RES
140 GOSUB 7300:REM OR
150 ? RES
160 GOSUB 7400:REM AND
170 ? RES
180 END
7000 REM M'CODE ROUTINE
7010 FOR LOOP=0 TO 67
7020 READ B
7030 POKE LOOP+15521,B
7040 NEXT LOOP
7050 RETURN
7100 DATA 32,76,6,173,100,6,77,102,6,1
7110 DATA 133,212,96,72,76,6,173,100,6
7120 DATA 137,107,6,173,212,173,101
7130 DATA 6,13,102,6,133,212,76,32,76,
7140 DATA 6,173,100,6,45,102,6,133
7150 DATA 212,173,101,6,45,102,6,133,2
7160 DATA 12,76,104,24,105,1,141,70
7170 DATA 6,104,141,77,6,104,102,3,104
7180 DATA 6,102,16,245,76
7190 DATA 255,255,6,6,6,6
7200 REM EOR
7210 RES=USR(1552,NUM1,NUM2)
7220 RETURN
7300 REM OR
7310 RES=USR(1572,NUM1,NUM2)
7320 RETURN
7400 REM AND
7410 RES=USR(1592,NUM1,NUM2)
7420 RETURN
```

Program I

Micro Scope

CIRCLE computes a circle and draws it on a graphics screen chosen by the user.

It uses the **XIO** command to fill the circle as it's drawn.

If you remember your school maths you'll know that the general equation for a circle is $R^2 = X^2 + Y^2$.

**No. 5
Circle**

```
10 PRINT "Graphics Mode..."
20 INPUT G
30 GRAPHICS G:COLOR 1:POKE 765,1
40 PRINT "Centre (X,Y)...":
50 INPUT X0,Y0
60 PRINT "Radius...":
70 INPUT R
80 GZ:RMR
90 PLOT X0,Y0+R
100 FOR Y=R TO -R STEP -1
110 X=500(2-(Y*Y))
120 GOSUB 300:X,Y0+Y
130 NEXT Y
140 FOR Y=-R TO 0
150 X=500(2-(Y*Y))
160 PLOT X0-X,Y0+Y
170 IF ABS(Y)=0 THEN GOTO 200
180 XIO 10,R0,0,0,"S")
190 NEXT Y
210 GOTO 10
```

- 10-20** Ask for and receive the desired graphics mode.
- 30** Set up the mode and colour. Location 765 tells the fill command which colour to use.
- 40-70** Ask for and receive the centre and radius of the circle to be drawn. Note that no error checking is done to prevent the cursor going out of range in the chosen mode.
- 80** Square R. Since the radius is a constant for any circle being drawn, it's more efficient to calculate it once outside the main drawing loops than repeatedly inside the loops.
- 90** Plot the first point on the circle.
- 100-140** Draw the right-hand half first. Compute the position to be drawn to using the circle equation.
- 150** Start of loop to draw left-hand half.
- 160-170** Compute each point and plot it.
- 180** Check for top and bottom pixels.
- 190** Fill the circle as it's drawn.
- 200** End of loop.
- 210** Go back and start again.

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Graphics exact too great a sacrifice

LEVEL 9's Red Moon is now in the shops and doing well by all accounts. It's the first Atari version with graphics, and part of Level 9's new strategy of releasing lower priced games between their normal priced "theme" games.

At £6.95, the same price as Emerald Isle, Red Moon is £3 cheaper than the Silicon Dream Trilogy, the final part of which, The Worm in Paradise, will be launched soon.

In the meantime we adventurers are to get to grips with the first Majik adventure from Level 9. The story goes, as recounted on the inlay, that when Majik was at its most powerful so was the moon which glowed – surprise surprise – deep red.

The moon and sun, however, didn't get on so well together, and whenever their paths crossed they tended to have a bit of a battle, and so the moon grew weaker and weaker. As a consequence so did Majik.

Obviously the Magicians' Union was none too pleased and so, in the moon tower of Blaskalos, it placed a moon crystal powerful enough to cover the whole kingdom.

So what is the problem, you may ask? Well some little thing has nicked the crystal – and off you go to find it.

Two new elements appear in this game. First the use of spells, through a CAST command. Each spell requires a focus object – listed on the inlay, it might have been a bit more of a challenge if you had to discover which object was a spell focus.

Some of the connections are a bit remote. A pearl is the focus for the SNOOP spell and gloves for discovering whether or not TREASURE is valuable.

Also SAVE and RESTORE are listed as spells. No focus object is required, but it means that, as with

the other spells, they will not work in the presence of iron, which can be a bit of a bind.

The other addition is of combat, as some of the treasures are guarded by the mythical beasts of the kingdom. This is the weakest of the new elements, since the combat routine is repetitive and is, in effect, a stand up battle between you and your opponent until one keels over.

The first screen sets you on a grassy plain and gives you the first taste of a slickly drawn colourful, yet somewhat two dimensional, graphics screen.

The plain is a sheet of green, with what appears to be six tufts of grass. The screen also refers to a yellow sun, but unless my Sony is playing up, or that is the RED moon up there, the sun is anything but yellow.

Just to help you at the start, you own nothing. By following the guide sent to reviewers you are able to quickly acquire several useful possessions. The ubiquitous axe and lamp, and by drawing the lake, a pearl, not from an oyster but oyster fungus – shades of Return to Eden.

In fact there is a great sense of déjà vu about the whole game. The graphics mean that the text is not as voluminous as usual and the whole game seems to consist of rooms, corridors and caves, with few interesting articles or problems other than a knock 'em down fight to the death.

The problems are not as involved as we have come to expect from Level 9, and some problems are recognisable from other adventures, such as getting past the watchdog.

Anyone who finishes The Pay-Off will have no problem here.

I reserve my final comment for Level 9's graphics. Let's face it, they add little or nothing to the game. They merely depict the fixtures of the



rooms in which you stand.

Even the more interesting characters, such as Sog the Newtling and the Rat, are not drawn.

At £6.95, Emerald Isle is a definite step forward by Level 9, a good cheap adventure with bags to do and lots of atmosphere. Red Moon loses much of that involvement through including graphics, and to my mind the sacrifice is too great.

On to a game which requires no introduction following the review in the August edition of *Atari User*, Infocom's **Hitch Hiker's Guide to the Galaxy**.

In that review the problem of how to get the Babel fish was touched upon, and it is an extremely entertaining puzzle which unfolds as you try to prevent each successive Babel fish from disappearing in an even more convoluted way.

It is not my policy to give away the answer to a problem. This particular problem, however, had me so enjoyably bemuddled that, step by step, I shall take you through how to solve it.

People wishing to extend themselves should read no further, but jump to Wizard of Akryz later on.

Now then, as Arthur Dent, recently of no fixed planet, I have come to my senses in the hold of a Vogan space ship, and have a sleeping Ford Prefect and a Hitch Hiker's Guide for company.

Knowing from the books that I now need to insert a Babel fish in my ear in order to understand the wider universe and its various tongues, I press the button on the Babel fish dispenser, only for it to shoot across the room and vanish through a hole under a small hook!

No problem. Simply remove my dressing gown (I hope no one comes in), hang it on the hook, and try again. This time the Babel fish slides down the sleeve of the gown and slips through the previously unnoticed grating on the floor and down the drain. Curses!

Eventually, as no hoopy frood should be without it, I place my towel on the grating. It fits, and lo and behold the next Babel fish slithers neatly onto the towel.

Behold also the zippy little cleaning robot which whizzes through at breakneck speed, picks up the Babel fish and disappears through a small panel a few inches high in the

wall. After several attempts at catching the robot I eventually hit on trying to block the panel.

Several bulky objects later, including myself, I place the satchel next to the panel.

Press the button and this time the robot ploughs into the satchel and the Babel fish arcs gracefully into the air, where a top half of the cleaning robot zips out and grabs the fish in mid-air and vanishes.

The next few hours are spent flinging a succession of objects into the air and watching a succession of extremely efficient cleaning robots gather them up, plus Babel fish.

Even summoning the Sirius Cybernetics Corporation engineer robot did

By Brillig

no good. You see, he only repeats the automatic thumb I tried throwing in the air.

Finally a brainwave.

Instead of throwing things into the air before getting the Babel fish try and get them there at the same time.

Carefully I piled the mail on the satchel, and pop out comes the Babel fish, down the sleeve of my gown, onto the towel, scooped up by the robot which smashes into the satchel, sending the whole kit and caboodle into the air.

So while the top half of the cleaning robot is frantically gathering up junk mail the Babel fish slithers neatly into my ear.

So now when the Vogan announcement that Ford and I are to be

thrown overboard is translated I can still smile.

The HHG is without doubt the zaniest, funniest adventure yet written, even if much of the action simply unfolds before you.

It's an absolute must for fans and non-fans alike.

This leaves me time to have a quick look at **Wizard of Akryz** from Adventure International, where Simon Ashford keeps finding his spectacles falling off.

Early in the game, Simon, you should find a painting held on the wall by a fine chain. That should fix you up all right, but carry plenty of objects as mapping this Mysterious Adventure is as tedious as ever.

Finally Glitch of the Month this time goes to S.P. Barot of Davenport and concerns The Pay-Off from Atari.

Not the two responses that he got from the game, however.

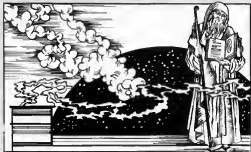
They are both quite deliberate, and you should get a chastening response for one of the things you typed.

No, the glitch belongs to the Atari Helpline, which told Steve that by cutting a notch in his disc he would corrupt it.

In fact that is the only way to save the game position on the disc provided, which comes with the Atari disc promotion package.

Failing that, any disc formatted to standard DOS 2.0 will enable you to save your position. Tut Tut Helpline. A medium T shirt is on its way to you Steve.

Also, move things around in the bank to find an exit you ought to realise is there, and you're almost home and dry at Luigi's.



RECENTLY I purchased an Atari 800XL and after a few reliability complaints with the 1010 cassette unit I settled down to the keyboard and taught myself the majority of Atari Basic.

However it does not support all the graphics modes of the GTIA chip, in particular the mode which allows 16 colours with a resolution of 80 x 192.

So I am left in a position where I know it's in there but I can't get to it.

Are there a few simple pointers to put me in this mode? if not, can you suggest a book with a routine to do this?

At the moment all I have is a few American books and they seem to deny the existence of such a mode.

In reference to the new XE range which I'm told will have a new improved disc drive available, should I buy a 1050 or will the new disc drive be compatible with the 800XL and the available disc software? — M. Wilson, Yeovil.

● You will be delighted to find that Atari Basic does support the extra graphics modes, even if the books you have been reading don't.

After Mode 8 there are another seven modes for three on the old Atari 400/800.

Brutally, Mode 9 has one colour and 16 brightnesses (80 x 192).

Mode 10 has nine full

Graphics galore on the 800XL

colour/brightness combinations (80 x 192).

Mode 11 has 16 colours and 1 brightness (80 x 192).

Mode 12 is multicoloured text (40 x 24).

Mode 13 is multicoloured text (20 x 24).

Mode 14 is 2 colour (160 x 192).

Mode 15 is 4 colour (160 x 192).

See Dave Russell's Graphics column for more details.

We wouldn't bother waiting for the new drives — for quite a while yet software will be only available for the old drives, and a 1050 is quite cheap now anyway.

Banishing bugglers

HAVING been an avid Atari user for many years now, I recently bought your magazine which I found, to my delight, was that which I had been waiting for.

After years of Sinclair/Commodore/BBC domination, good old Atari have finally

woken up their magazine/software markets which piques me no end.

I am writing in the hope that you can solve a few problems I and other Atari Users I know of have had.

The first of these mind bugglers is that I was wondering whether the video touch pad from the Console game (1200) Star Raiders is compatible with the joystick ports of my Atari 800.

If so, how is it possible to "read" the various buttons of the pad?

Secondly, I have discovered in the Atari manual "Your Atari Computer" the peek/poke location for allowing up to seven files open simultaneously.

A full paragraph carefully explained that I should poke 1801, x; x being the amount of files I wanted to open at one time.

To my disgust this failed to work even after sustained efforts to discover the problem and I have viciously savaged various pieces of my Atari equipment.

I am sure I have enough

memory, and using DOS 2.05 I should be allowed seven files open at once (I only require four) so what is the problem?

Finally, I was wondering whether you know of a program that could handle vertical and horizontal scrolling in various graphics modes. — R. Chapman, Southampton.

P.S. Here is a table of the peek location to see if a console key has been pressed.

PEEK (53279) You will get a value 0-7 and the following explains the meaning of each.

0	START	SELECT	OPTION
1	-	SELECT	OPTION
2	START	-	OPTION
3	-	-	OPTION
4	START	SELECT	-
5	-	SELECT	-
6	START	-	-
7	-	-	-

● Firstly, assuming that the video pad from Star Raiders works in the same way as the ordinary key pad for the VCS, there is a little program to read the buttons in the Atari Basic Reference Manual — that's the original loose leaf manual released with the old 400/800 machines, which is still available from Atari.

The POKES for DOS which enable extra buffers DO work, but don't forget that they won't come into effect until you hit the System Reset button.

Better still, POKE the numbers you require, then go to DOS and format a new disc. Once you've written the DOS files to that disc, the new configuration can be booted up every time.

For anyone who wants to try for themselves, location 1802 contains the number of drives active in bit-coded form.

I HAVE a small emergency bulb which lights quite brightly on the power supply at the joystick port on my 800XL.

I wondered whether you could tell me how I could turn it off and then on again.

What software would have to be written to achieve this and which two pins would the lamp have to be fitted to on the joystick port? — Dean Rossiter, Wellingboro, Northants.

● André Wiley replies: The fact that the bulb may light

quite brightly does not necessarily mean that the computer is rated to run it. The +5V DC output on Pin 7 of the joystick connector is only rated at 50mA maximum drain, which is not really enough to run even a small bulb.

The PIA output ports — the joystick connections — are rated for TTL levels, one load. This means that you can't directly run a bulb from the port.

However if you run a transistor from the TTL port

and switch a bulb/battery combination, then the sky's your limit.

If you go one stage further and use an opto-isolator or relay, you can even switch mains — indeed, I've built a module to do that very thing.

The software would be very simple indeed, needing only a very few POKES. If anyone would like to see an article on plugging Atari into the outside world, then let us know and we'll plan one for a future issue.

Lighting up the micro scene

Thus 1 means you have Drive 1 only, 3 means Drives 1 and 2 are active, 7 means 1, 2 and 3, etc.

Each new drive requires more buffer space to work, so if you only have one drive, PDKE with 1 to save memory.

Location 1801 contains the number of active buffers. Each open file you wish to use simultaneously needs one buffer, plus each active drive will need two buffers.

Change this number if, for instance, you want more than three files open at the same time.

Don't forget, though, to either hit Reset, or format a new DOS disc and re-boot before you try to use the newly-set up configuration.

Bomb Run flashes

When I received the July issue of the Atari User I typed in Bomb Run on my 16k Atari

800, but when I ran the game the screen was disturbed by yellow and orange flashes.

Is there anything wrong with the program?

I also typed in Treasure Hunt I had not finished the program but I had to go out, so I typed the program with my Atari 1010 recorder.

When I returned and tried to load the program, the computer loading sound was distorted and "Error 140" appeared on the screen.

So I reloaded the program. This time the message "Error 138" appeared.

The whole program had gone. Please can you explain why this happened? — Kalpeah Tanne, Kenton, Mid-Devon.

● As far as we know there is no problem with Bomb Run.

Check all data statements and any pokes made from items read from data.

A faulty poke could easily crash the computer. Also, see the modifications offered by Peter Appleton on Page 58 in last month's Atari User.

The problem with your crashing game sounds like the age-old bug in the operating system of the 400/800 computers — it was corrected from the XL range onwards.

Basically, the tape recorder buffer area can be left full of random data and this is not cleared before writing to the tape.

To correct this, anyone using a 400 or 800 computer should always type LPRINT before saving anything to tape.

This will clear the buffer by sending the contents to a printer. If you don't have a printer, you will get an Error 138, but the buffer will still have been cleared, so you can ignore the message.

Pixelated pixels

I own an Atari 400 and both 410 and 1010 recorders. Looking at the programs in your magazine, I noticed that it

was a headache typing them in. You have a monthly disc with the programs on, but why not a monthly cassette?

This is quite irritating because I have no choice but to type them in. I suppose that other Atari users think the same.

Also, when I type in graphics Mode 8 on my 400 it should only be one colour, but when I start drawing lines, they end up in lots of different colours. Why is this?

Finally, can you name anywhere where I could buy a 13-pin Atari input/output plug like the ones on the tape decks? — A. Groves, Bristol.

● The multicolour lines in Graphics 8 are not the fault of the computer, but of the TV you are using.

The British TV system is made up of tiny patterns of red, green and blue dots. By summing three adjacent dots on 'full' you get a white image on the screen.

The problem is that a Graphics 8 pixel is about the size of one of these small

LOOKING FOR A BETTER BASIC

I own a BBC Micro and am considering purchasing an Atari, due to its excellent graphics and colour, and also as it uses the same 6502 microprocessor, whose assembly language I am accustomed with.

I know that the Basic provided with the machine is quite good, but is not structured. I should therefore like you to tell me what is the best Basic to buy (or, if necessary, which has structured programming and is generally similar in concept to BBC Basic).

I have heard that Basic XL is excellent, and would be pleased if you could give me any details on this. I have also heard of a language known as Action!, and would like to know the purpose of this.

I would like to know the best assembler cartridge (disc) to buy. I already know the 6502 operation codes, but do not know the Atari computer's built-in machine code routines,

and the start of screen memory locations, and how they are constructed.

I should therefore be grateful if you could tell me the names of any books giving the relevant information, that is, a book like the Advanced User Guide for the BBC, except obviously for the Atari.

I know sprites are provided with the computer, and wonder how many there are, and whether they can be multi-coloured as are the sprites on the Commodore 64.

Also can you give the name of a book which had this sprite information in it?

Is it possible to use one disc drive between two computers, without actually having to plug and unplug the drive between each computer?

Finally, do you know whether there is going to be a £400 Atari ST, and if so, when is the ST range going to be on sale? — N.C. Judge, Ashford.

● André Wiley replies: Both

Basic-XL (and its new, even more powerful, big brother Basic-XE1 and Action! are products of OSS in California, and can be obtained from many dealers or from the UK distributors, Software Express.

They each have their own advantages. Basic-XL/XE1 have many features not available in normal Atari Basic, including structures, sprite handling, better I/O, etc.

They are also about three times faster than Atari Basic.

Action! is a very high-speed editor/compiler system which behaves like C and runs faster than anything else on the Atari except machine code.

It is also quite easy to write in, with a format nearer to structured Basic than C.

I use both extensively, and recommend them without question to any serious Atari programmer.

Your second question boils down to OSS again. Mac-65 (cartridge or disc) gives you speed, macros, etc. It also is an

editor/assembler, though it can do a complete disc-to-disc assembly if required.

For the technically minded, I recommend three main books:

De-Re-Atari (Atari) is a tutorial/guide to many features of the hardware and OS.

Mapping the Atari (Computer! Books) is a superb memory map, and I find it quite invaluable. Once you know the system, this book would be referred to more than any other.

Technical User Notes (Atari) are the complete notes, including circuit diagrams, for the computer. You also get a full operating system listing and full OS documentation.

The above books cover sprites too, in great depth. There are eight, single colour, sprites (four large, four small), but these can be multiplexed and so forth "on-the-fly".

The cheapest ST, the 280ST, will be around £500.

"colour gun" dots, and so as the TV turns off all adjacent dots - thus it can't properly balance out the first colour with two others - you get a colour bias.

If you use a high resolution monitor the effect becomes much less noticeable.

However, the effect can actually be quite pleasing if you utilise it well. See Dave Russell's Graphics column in the October issue for a good example program.

13-Pin I/O plugs are quite hard to get hold of, but you could try Silica Shop or Software Express.

As for monthly cassettes of Atari User programs, these are now available - see Page 61.

3D colour system

I AM looking for a three-dimensional colour drawing system for the Atari.

I have seen two advertised already, Atari World and 3D Super-Graphics. Both were advertised by Maplin in 1983, but when I rang them they had never heard of them. They are made by United Software of America.

Do you know anyone who stocks them or is willing to order it?

I have tried Silica Shop, Maplin and Zoomsoft. Has anyone heard of it? - Nigel Mirza, Reinheim.

Both Maplin and the Atari Center in Broad Street, Birmingham, have had these titles in stock at one time or another, but if they have sold out, perhaps Software Express can get one for you, as they specialise in getting special order items in from the States.

You may, of course, find that these items have been discontinued.

Books on machine code

WOULD you please be so kind as to tell me where I could obtain a machine code book for the Atari, or the name of a

ATARI USER Mailbag

WE welcome letters from readers - about your experiences using the Atari micros, about tips you would like to pass on to other users, and about what you would like to see in future issues.

The address to write to is:

**Mailbag Editor
Atari User
Europe House
68 Chester Road
Hazel Grove
Stockport SK7 5NY**

book with this information is - Shane Bradbury, Hertwell, Northants.

That's an easy one. Try Computa's First Book of Machine Code, in conjunction with their Mapping the Atari (Computa! Books), available from most good Atari specialists.

Also recommended, but on 6502 machine code generally, are Rodney Zaks' Programming the 6502 and Lance A. Leventhal's 6502 Assembly Language Programming.

Don't forget that with the last two a good book on the workings of the Atari is also essential, such as Mapping the Atari, or Atari's own De-Re-Atari and the Technical User Notes.

Logging on to MicroLink

I HAVE an Atari 800 computer, an 850 interface and a WS 2000 modem.

I have until recently used Homestem software by Batteries Included to access bulletin boards.

Two weeks ago I paid a subscription to MicroLink but on trying to use this excellent program on MicroLink I was unable to log on to the system.

I am however able to log on with my 520ST with the Inbuit software, so there is no problem with the modem.

I have printed a rough draft disassembly of Homestem but am unable to find where

the RS232 port is configured as I am only a beginner at machine code.

I would be grateful if you or anyone else could tell me how to correct this problem as I am reluctant to change this excellent program - R.A. Horner, Sheffield.

We had exactly the same problem with HomePak in you seem to be experiencing.

After trying other programs - much less user friendly, but easier to re-configure - we found the problem was with the PSS system, not with HomePak.

What HomePak does in Asci mode is to send a line feed after every Return character. This causes Gold, and most other boards we have tried, no trouble at all.

However PSS needs two Returns with nothing between, so the line feeds throw it off completely.

The cure is to switch into Atari mode from menu, and whenever you should type Return (at ends of lines, etc), just type Control-M instead.

Once logged on, that is as soon as you have typed in your password, hit Control-S to pause the system, return to Asci full-duplex mode, and use Control-Q to restart MicroLink.

We have configured a defaults file on HomePak to start up in Atari mode, and stored a macro to do all the work for us.

All we then need to do once the Atari is complete is hit Select (for menu), A (for Asci), Return (for main screen page),

then Control-Q and we're on-line. Have fun!

Saving data files

I WOULD like to congratulate you on your superb new magazine, it's about how Atari users had their own publication.

I recently purchased a 1050 disc drive and at the same time Microsoft Basic II.

However I can't seem to save data files successfully, although I know you should use the OPEN, CLOSE and EOF commands.

Please help, as I need to be able to do this for my O level project.

Might I suggest you start a page for classified advertisements, which should also include the names and address of user groups? - D. Hansen-Luke, Pulloxhill, Beds.

As far as we know Microsoft Basic II works fine as far as I/O goes, although the commands are a little different to those in standard Atari Basic.

There may be some problems when trying to use it with some DOS variations, such as DOS 3, so perhaps your problems lie there?

Anyway, if after trying with another DOS you still have problems, contact the Atari Helpline on 01-309 7770.

Printer for labels

I NEED a roll feed printer with ratchet for printing labels.

I have an Atari 800 computer with disc drive and tape recorder, so I would like any available information about the interface and software to go with the printer.

As it would be used to print address labels and product information, the software must be able to store the necessary addresses and information ready to print. - P.I.C. Gooch, Brighton.

Which is over 100% complete.

probably the cheapest available with friction and tractor feed, and it has the advantage of plugging straight into the machine.

It allows graphics printing, but is rather poorly supported by software. Print quality is only fair, but it retails at about £200.

If you can afford that little bit extra, probably the best printers to look at for linking to an Atari are the Epson range, especially the established RX 80 F/T or the new LX 80 near-letter-quality model with optional sector feed.

These are supported by a wide range of software which also allows you to print graphics. They use a Centronics connection, so will work with most commercial printer interfaces — Atari 850, Blackthorn, FCC Systems.

It is really a case of horses for courses though, and if you find a cheaper printer fits the bill exactly, then buy it.

The other thing to bear in mind is that if you may want to use a modem in the future try to get hold of an 850 module, because that has both serial and parallel ports.

On the software side, a good database to try is Synapse's SynFile +, which is not too expensive and is very versatile.

It will allow storage to any density of disc drive, plus full list/label options for your printers.

It is also driven by pop-up menus, which makes it very easy to use.

Connecting a printer

I AM interested in buying a printer for my Atari 800. I actually require a letter quality printer, but the market for all types of printer seems rather limited.

There were virtually no adverts for printers in the first issue of Atari User. Please can you tell me what is available.

Does anybody besides Atari themselves manufacture printers directly compatible with the Atari 800?

What is the specification of

DO you know of anywhere I could get a case in which to keep my Atari 800XL and 1010 recorder — I've seen them for a couple of other types of computer but not for the Atari.

A dust cover isn't really protective enough, so at the moment I have to use the enormous cardboard box in which it came, so a case would be really very useful.

Also could you recommend a book for the 800XL which will actually get me doing things on it.

At the moment I seem to use it solely for games, so my very basic 0 level computer studies doesn't exactly provide

much inspiration.

Finally, a problem I have relating to the game Citadel Warrior from Atari Smash Hits Vol 3.

There seems to be something in the program which stops it after seven minutes, so how is it possible to get beyond the first part of the second level? — Deborah Thompson, Nottingham.

● We don't know of any cases for the 800XL plus recorder, but someone out there probably makes them.

If anyone knows of such an item, perhaps they could write in.

As for books which get you doing something, the Com-

putel series of Atari books are very extensive, and feature articles on many diverse aspects of Atari computers.

We wouldn't really recommend all of them for someone who is just starting with their machine, but you have obviously got to grips with Basic already.

They contain programs and tips on all sorts of subjects, and would be a good starting point for developing your own ideas.

Contact any Atari dealer or mail order specialist for details of the range, which is quite considerable.

Would anyone else care to comment on Citadel Warrior?

the connector for the Atari bus, that is what signals are on what pins as well as the connector type?

Finally, what are the disadvantages of connecting a printer via a joystick port? — D.A. Wilson, Reading.

● Atari makes a letter quality printer — the 1027, but it is very slow and noisy. It does, however, connect directly to the Atari without an interface, which saves you a bit of money.

It is the only letter quality we know of which can connect directly to the Atari bus.

Most types of printer will connect via a Centronics type connector, and any computer shop will be able to show you printers which can do this.

The bus is a special 19,200 baud serial interface, and can't be linked to printers without a lot of extra circuitry to convert the serial signal to the parallel Centronics standard.

You can buy such interfaces, and there are about half-a-dozen currently available from various companies — see adverts in this issue.

You can connect a printer via the joystick ports if you write a machine code handler routine, but it would only work with your own programs, say Basic listings. Any commercial software at all will expect the

printer to be attached via the bus, and it would be almost impossible to modify for joystick port use.

Drawing software

DOES anyone know of any technical drawing/drafting software which is available for the Atari 800XL?

Numerous packages exist for the Apple and BBC computers which use the same processor, the 6502, as the Atari.

The Atari Touch Tablet should be an ideal input device for such a program.

The increasing use of CAD (Computer Aided Design) in engineering should promote a greater interest in this type of application on home computers, particularly those with the graphics capabilities of the Atari.

Schools and technical colleges would also appreciate such an application no doubt. Anybody got any ideas? — A.C. Chamberlain, Tunbridge Wells.

● We don't know of a specific CAD package for the Atari, but Datascout produced something very similar called Graphic

Master, which allowed designs to be created on a Graphics 8 screen, manipulated, rotated, flipped, etc.

Routines were included for lines, circles, polygons, overlays, moving blocks, changing the scale of portions of the design and three different text overlays.

You could also transfer portions between work screens and the main design screen, and use a system of icons, for example electronic component symbols.

Once drawn, the images created could be stored on disc or printed on an Epson or NEC-type printer.

It's quite an old program, but well worth searching for. If you can't find one see if someone like Software Express can import a copy for you.

Problem with Basic

I HAVE a problem with Atari Microsoft Basic V1.0.

I have just bought a 130XE to replace my old 800, at the same time I received my copy of DOS2.5 with the Ramdisk utility. What I would like to know is, can I use the Ramdisk with Microsoft Basic booted

and how can it be done? — **George Lusher, Erith.**

● The old MicroSoft Basic was recorded on a master disc which included DOS 2.0 and then protected. This means that short of copying it to another disc and re-protecting it — a complex job — it can't be used with a different DOS.

However, Microsoft Basic 2 — the cartridge — can be used with DOS 2.5, as can Basic-XL from OSS.

If you do decide to upgrade, we recommend Basic-XL over Microsoft, as it features almost all that the MSB-II does, plus better graphics routines and memory management.

More support needed

I'm selling my Commodore 64 to buy the Atari 130XE.

There are several shops not far from my home that sell Atari computers, and software for just about every home mine, other than for the Atari.

I am thankful for your excellent magazine from which I will be able to send off for software.

Why is there so little support for Atari computers, that are in a class of their own? — **Andrew Sharp, Sels, Cheshire.**

● Support for Atari machines seems to be increasing all the time. Keep asking for Atari software in the shops and maybe they'll get the message.

Shorter programs

CONGRATULATIONS on yet another excellent issue of Atari User.

It is a pity, however, that you see fit to devote letter space to games scores. This sort of information is of interest only to its sender, usurping space which could be put to better use.

Could you please at least ration the coverage given to this tedious and gratuitous ego



I HAVE a 800XL and I am a great fan of adventures so I typed in Raider 1997 as soon as I got my copy of the August edition.

Having only 16k I can't buy any adventures so you can imagine my annoyance when I got an error 5 at line 1020. Could you please tell me what might be wrong with it?

Also, I think you should

Trouble on line 1020

have more competitions and software reviews. — Andy Latta, Fife.

● You've probably made a typing error somewhere. Check line 110 where \$S should be dimensioned 20.

be listed legally and it'll take time — a rare commodity around here.

Pin outs, please

I HAVE just purchased an Atari 800XL and am delighted with it. Can you print the pin outs in your magazine as I am interested in connecting a disc drive, modem and printer all at the same time.

I would like to run a lead to connect my 800XL to another 800XL in the next room. I know this is possible but I don't know how. I would like to be able to ask a question on one 800XL and answer it on the second one! I can't see any reason why I shouldn't be able to continue to add 800XLs ad infinitum.

So how about an article for the technically minded ones of us that have a soldering iron. — John Hopkins, Wisbech.

● Pin outs are given in the Technical User Notes, along with timing diagrams that you can purchase from Atari.

However you can simply plug a disc drive, printer, interface for RS232, cassette and so forth into the machine at once. Each new unit plugs

into the extra socket at the back of the last one, like a daisy chain.

The best way to connect machines together is via the joystick ports.

We hope to have an article detailing this technique in a future issue.

Data on disc drives

CAN you send me some details on the 1050 and 810 disc drives.

The Thorn game Tennis does not seem to work on my 800XL. Why is this? Can I get a cartridge or cassette that will get this game to work? — **S.T. Dunn, Waterloo, Hants.**

● The best thing to do if you want details on disc drives is to contact either your local dealer or Atari in Slough, both of whom can give you the information you require.

We would recommend the 1050, as it can store more data, is more compact and quieter.

Otherwise, there is no real difference between the drives except that a few — a very few, about five or six — old programs would not load correctly on the new drives. New versions of these titles have, of course, been brought out, but if a shop has stock over two years old it could be suspect.

The problem with Tennis is more fundamental — many old programs will not work with the XL computers at all.

This is due to the software houses not having followed Atari's guidelines correctly, so the program won't work on a new machine.

Thorn/EMI Tennis is so old that we don't even remember it, but the best solution for a cassette-based system is either XL-Fix or Computer Support's 80 Column Pack. Atari's own translator is good, but is only available on disc.

The 80 Column Pack has the very useful side-effect of converting the XL operating system into an enhanced version of the old Atari 800 one.

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AUGUST: Assembler: Make machine code programming easier. **Fruit Gambler:** Save money with this fruit machine emulation. **Mandelbrot:** Complex patterns made easy. **Protection:** Protect your programs from peeping eyes. **Display List:** Demonstration programs. **Raider 1997:** Futuristic test adventure. **Touch Tablet:** Demonstration programs.

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OCTOBER: Postcode: Tally? Bust! **Memory Dump:** Examine memory in hex and Asch. **Display List:** Demonstration programs. **Wrap Trap:** Action game for one or two players. **Computer Canvas:** Make your own micro masterpiece. **Assembler Update:** Improvements for the RAW assembler. **Ram Disc:** Make the most of the 1300XE's extra memory.

NOVEMBER: Guy Fawkes: Help Guy escape from the guards. **Carroms:** Teach your Atari to be a psychobanter. **Display List:** Demonstration programs. **Bitwise Operations:** Unity to provide logical functions. **Circle:** Draw and fill a circle. **Pixel:** Freecell of the month - Creepshaw machine code pinball game.

FREE

Starting this month we are giving away an extra game along with the monthly cassette or disc.

To start the ball rolling, this month's offering is CREEPSHOW, a superb machine

code pinball game which will keep you glued to your Atari for hours.

And remember, you won't find it listed in the magazine - it's only available if you buy the monthly cassette or disc.



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July issue: Disassembler, Bomb Run, DOS 2.5, 17 Commandments, Adventuring, Display List Tutorial, Software reviews, Power Functions, Treasure Hunt, Keyboard Sounds, Microscope, Insights - Regular series of tutorials, Bit Wise, Beginners and Graphics.

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September issue: 8 page special on the S20ST, Mode 8 screen dump routine, Maze Munch, Data Maker, Display List Tutorial, 68000 addressing modes, list processing with Logo, Software reviews, Insights - regular series of tutorials, Bit Wise, Beginners and Graphics.

October issue: Computer Canvas graphics program, Updates for the RAW 6502 assembler, 130XE Ram disc utility, first ST book on offer, Hex/Asi memory dump utility, Pontoon, Software reviews, 68000 operating environment, Wraptrap, Insights - regular series of tutorials, Bit Wise, Beginners and Graphics.

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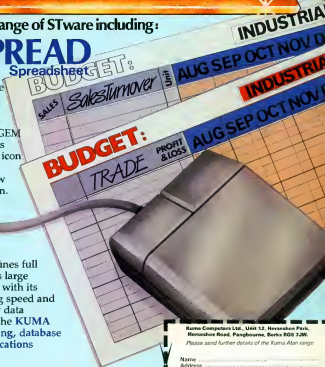
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